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DHI'S MAGAZINE FOR DOOR SECURITY + SAFETY PROFESSIONALS

# doors + hardware

Volume 80, Number 9

## Doors + Hardware

14150 Newbrook Drive  
 Suite 200  
 Chantilly, VA 20151-2232

703.222.2010  
 publications@dhi.org

www.dhi.org

## Chief Executive Officer

Jerry Heppes Sr., CAE  
 jheppes@dhi.org | 703.766.7010

## Executive Vice President

Stephen R. Hildebrand, FDHI  
 shildebrand@dhi.org | 717.368.6359

## Director of Operations

Sharon Newport  
 snewport@dhi.org | 703.766.7009

## Communications Manager/Managing Editor

Denise Gable  
 dgable@dhi.org | 703.766.7018

## Advertising Manager

Molly S. Long  
 mlong@dhi.org | 703.766.7014

## Media & Editorial Board

Jason P. Gehrs, AHC, FDHI	Ginny Powell Diana San Diego
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# The New Wave of Social Technology

By Jerry Heppes Sr., CAE

**Early in my career, technology advances were first found** in the office and then transitioned into the home. Early cell phones were designed for company executives. Facsimile machines, printers, copiers and document scanners were only found in the office.

Today, it has reversed. Cell phones are designed for the general consumer and adapted for the office; although that line is blurred. Everyone owns a home printer that scans, copies and prints documents. These affordable small printers were primarily for home use while offices still relied on industrial printers. Today, most office workers have a small portable printer; the same brand and model as the type they use at home.

The same can be said of software and social media. Most of the trends start for the public and make their way into the company. Facebook and LinkedIn are now actively used in the office. So how do you stay up with all of these trends? Engage a non-baby boomer! I suggest that once a quarter you ask your millennial workers to apprise the staff, in particular, management, on the latest internet-based social products. Help them explain the potential uses for these various tools. Ask them to focus on what has gone out of style and what is new. Then make a concerted effort to consider employing these in your offices.

Why? Consider that many of the younger generations—the non-baby boomers—are advancing in their professional careers and are becoming the decision makers. If you want to be relevant, you'd better understand their world and employ their tools in your company.

I asked Chris Jones, DHI Marketing and Communications Coordinator and a member of Gen Y, to give me a quick list of some of the most popular tools and the latest trends. The list below is by no means exhaustive—but if you don't recognize these tools, ask a younger co-worker. If you want to be bold, ask him or her how they would employ these tools in your business model!

## Image Communication

- **Snapchat:** Send videos and pictures, both of which will self-destruct after a few seconds of a person viewing them.
- **Instagram:** Online mobile photo sharing, video sharing, and social networking service that enables its users to take

pictures and videos, and share them either publicly or privately on the app, as well as through a variety of other social networking platforms, such as Facebook, Twitter, Tumblr, and Flickr.

## Video Communication

- **Periscope:** Enables you to “go live” via your mobile device anytime and anywhere. The app enables you to become your own “on the go” broadcasting station, streaming video and audio to any viewers who join your broadcast.
- **Facebook Live:** Allows users to record live video up to 30 minutes on Facebook.
- **Vine:** A video-sharing app designed to allow filming of short, separate instances so they can be linked together for a total of six seconds. Each short video plays in a continuous loop, and is viewable directly in Twitter's timeline or embedded into a web page.
- **FaceTime:** An application that allows users to video chat over the internet.
- **Google Hangout:** A free video chat service that enables both one-on-one chats and group chats with up to 10 people at a time.

## Internal Communication

- **Slack:** Brings all your communication together in one place—real-time messaging, archiving and search for modern teams.

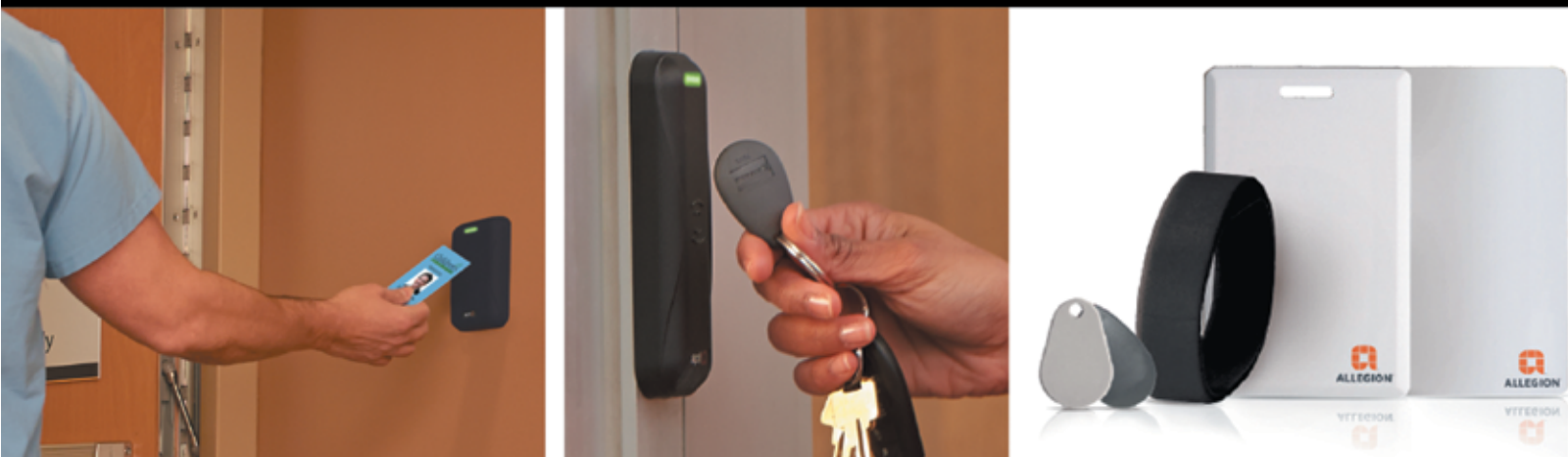
## Customer Communication

- **Facebook Messenger:** An instant messaging service and software application which provides text and voice communication through Facebook.
- **Whatsapp:** Internationally used cross-platform mobile messaging app which allows you to exchange messages without having to pay for SMS (Standard Messaging Service). ■

**JERRY HEPPESS SR.**, CAE, is the CEO of DHI. If you'd like to comment on this article or any others within the September issue, email [dgable@dhi.org](mailto:dgable@dhi.org).



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## Aubrey Browning

### STANLEY SECURITY

**DHI MEMBER SINCE:** 2000

**OCCUPATION:** Distributor Development Manager for Kentucky, Southern Indiana and Southern Ohio

**CHILDHOOD AMBITION:** Professional football player

**FIRST JOB:** Trimming Christmas trees in the summer at Ismond Tree Farm in Otsego, Mich.

**WHAT LED YOU TO OUR INDUSTRY?** My stepfather worked in the hollow metal shop of a distributor, Sahr Building Supply. In the summer prior to my senior year of high school, we finished trimming the trees a couple of weeks before football practice was to begin and I was offered a job sweeping the floors at Sahr Building Supply. That led to learning to grind hollow metal frames, install glass bead, weld, and install frames, doors, and hardware. That was all new and exciting, so I stayed with it.

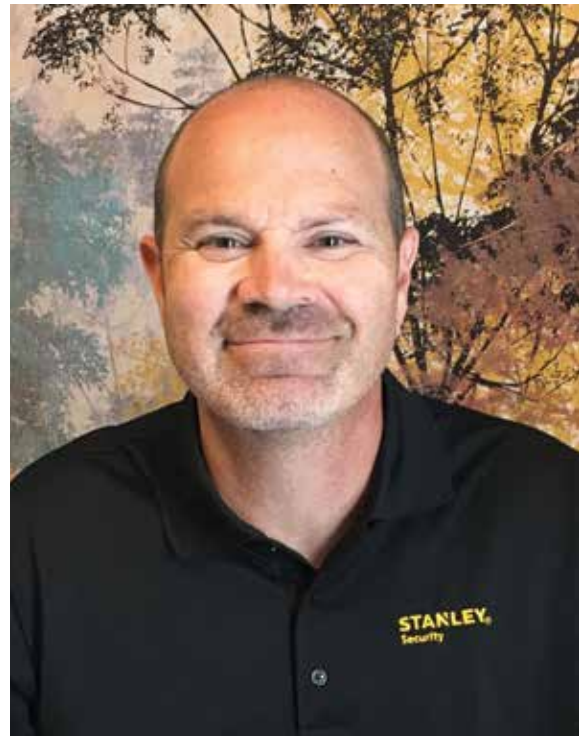
**PROUDEST PROFESSIONAL MOMENT:** Winning the bid and furnishing frames, doors, and hardware at The Big House in Ann Arbor, Mich. Being a lifelong University of Michigan football fan made this win special to me.

**BIGGEST CHALLENGE:** Time management. Since cell phones and email have replaced fax machines, the amount of time we all have to do work has decreased dramatically. In addition, the workload is always increasing, so the challenge keeps compounding.

**GUILTY PLEASURE:** Firearms and target practice. I can't seem to get enough of it.

**FAVORITE BOOK/MOVIE:** Either *The Terminator* or *Pulp Fiction*. My favorite book is *The Four Agreements* by Don Miguel Ruiz.

**MENTOR/HERO:** Mark Pulver, owner of Pulver Construction. He has always been true to his word; a handshake seals the deal; and he has always pushed me to think bigger and strive to be more than I thought that I could be, both personally and professionally. Whether it was teaching me how to play golf; encouraging me to go to college; or making time to teach me the basics of construction, he has always been there for me with real world advice and action. He is a master of keeping it simple. I continue to strive to be like him in the ways he manages family, work and life in general. I am proud to have him as my uncle and hero.



**BEST ADVICE YOU EVER RECEIVED:** Do your best and it will all work out fine.

**BEST ADVICE YOU NEVER RECEIVED:** This too will pass. This pertains to a hardware job or two that got pretty intense at times, whether it was my doing or not.

**HOW HAS YOUR INVOLVEMENT WITH DHI SUPPORTED YOUR CAREER GOALS?** My involvement in DHI has supported my career goals and growth throughout my career by facilitating networking. I have been fortunate enough to meet and get to work with some of the smartest and hardworking people in any industry. I met most all of these door and hardware professionals through local DHI meetings, golf outings, DHI conventions, and DHI national training across the country. ■

**Do you know a DHI member you would like to nominate to be spotlighted in Faces?**

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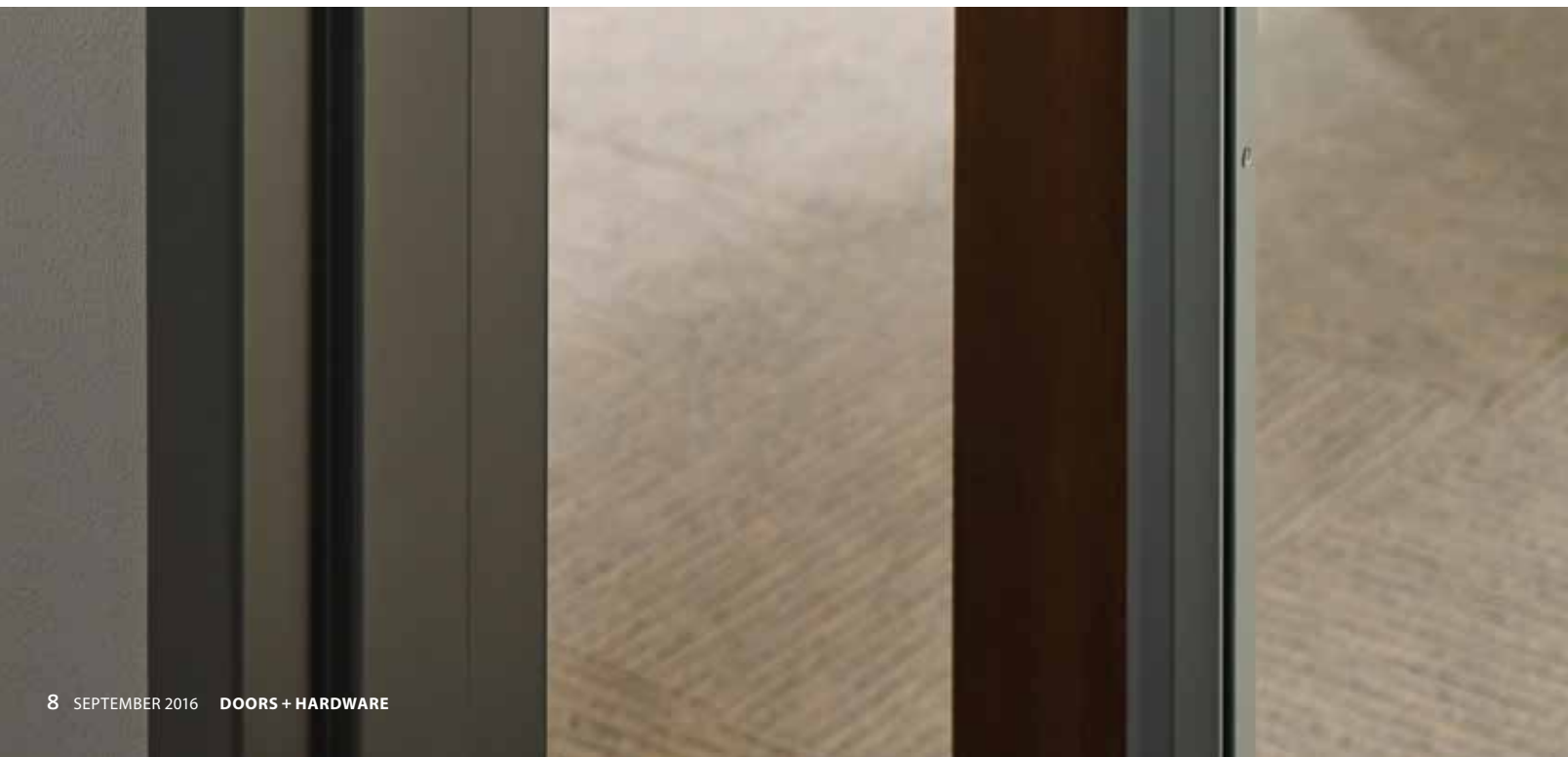




# EXPANSIONS IN ACCESS CONTROL

*As technology advances, these systems become the “trigger” for building functions such as lighting and HVAC.*

**By Minu Youngkin**





**With its ability to provide enhanced security,** efficient management and greater convenience, it's no surprise that electronic access control systems have become the de facto security solution for commercial facilities around the world. In fact, businesses are not only adding access control to their main facilities; but they're also extending it to parking garages, warehouses, storage units and other buildings not connected to the main facility. As technology continues to advance and building automation becomes

mainstream, the level of convenience these systems can provide is only increasing as they become the "trigger" for some other building functions such as lighting and HVAC.

Of course, without proper planning, these expansions can cause difficulties with network bandwidth and restrict accessibility for some users. Your expertise can play a critical role in helping customers understand the many factors that they need to consider before expanding access control.



Photo courtesy of Allegion





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## Expanding Security

For many clients who have experienced the level of convenience and security made possible by electronic access control systems, expanding it throughout every corner of the business seems like the next logical step. Many clients, particularly those operating healthcare facilities, are now looking for centralized security solutions that allow them to extend security beyond the main building to the entire campus while maintaining efficient monitoring in one interface.

But once the plans move beyond the interior of the building to areas like parking decks or garages, the process becomes more complicated and requires careful evaluation. If you have a client who wants to extend access control beyond the main building, be sure to thoroughly discuss the following issues before drawing up a plan:

- Use of the structure and overall intent
- Policies and procedures for access control
- How the extension of access control fits into their overall security plan
- Barriers and limitations

## Bandwidth

One of the most common barriers to expanding access control is the one that is most frequently overlooked—network bandwidth. If the existing network is not robust enough to handle the increased demand, the system will not function properly. Helping customers understand the importance of effective bandwidth management is the key to designing a system that truly supports their needs and priorities. And it takes budget commitments from every stakeholder, as well as a realistic understanding of bandwidth challenges, to bring everyone to the table.

One way to create this is through a demo. This can mean installing a camera on a current network for 30 days so the customer can experience and track its impact on data. Or it can be as simple as pulling the main internet line to see which devices work and which don't. For many customers, these can be eye-opening experiences that show just what's coming across their internet feed and how it's spread across the enterprise.

This type of demo helps shift the conversation about the budget, and bring all departments together as people realize that the internet is



a utility that everyone uses and it should therefore be a company expense, not just an IT expense.

The budget and goals conversation can also create a platform for helping customers solve their problems with flexible solutions that address all three parts of the system. For example, a discussion with customers might include a solution like this:

- Security: Installing surveillance cameras
- Network: Using cameras with local high-definition SD cards that deliver a lower quality feed in real-time and hold seven days' worth of data
- Physical security: Store the servers in an access-controlled location and transfer data from the SD cards in the cameras onto the server every seven days.

This kind of solution can help enterprises allocate bandwidth appropriately, maintaining effective security without reducing performance and

production in areas of the business. In addition, the customer can establish an effective security solution within a workable budget; focusing their spending on cameras with flexible data storage rather than rebuilding or installing a completely new network that may be out of their budget reach.

### Building Automation

Clients with more robust network bandwidth are discovering that they can dramatically increase the productivity of their electronic access control system by integrating it into an automated system that controls a facility's energy and water use, ventilation and more.

Consider a building where employees scan a badge or present a smartphone-based credential for access. When access is granted, the building's other systems are triggered to turn on the lights, adjust the temperature and alert security that someone has accessed the building. During the day the network monitors water use, sending an alert to facilities if a restroom faucet is left running or if a normally locked door is left ajar.

At the end of the day, the access credential is used to exit the building, triggering the reverse actions of the morning—lights are dimmed, temperatures are lowered, and doors are locked. While access control may be the “trigger” for all of these functions, the entire system is based on a sophisticated network.

Buildings waste a lot of energy—propping a door open can cause the HVAC system to go into overdrive, pumping out air and creating significant energy waste. The ROI on building automation can sometimes free up money for other projects, while enhancing technology, comfort and security. This can be a game changer for customers in the education, healthcare and government markets.

### Flexibility is Key

However, for many clients, building automation remains several years away and they often have concerns

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that the access control system they select today will not be flexible enough to be upgraded and expanded over time as their needs change. One of the biggest challenges is providing a viable, integrated solution that can meet current safety and security issues, as well as accommodate emerging technologies that will allow the system to expand and adapt as needed in future. Such solutions should be able to operate current technologies, as well as those under development, without compromising or risking investments in their present systems.

Because of budget or network restrictions, extending the security perimeter to remote locations often becomes a phase 2 or 3 initiative for a client. In those cases, it's typically best to create a scalable plan that ensures the IT infrastructure and associated products are "future-proof."

Design an open platform system that will provide the end user with many options now and in the future, rather than locking them into a proprietary

technology that forces them into a specific product or brand—and another significant investment if they want to make changes.

### **Ensure Accessibility**

Although access control products have a much-deserved reputation for convenience, it's important to be aware of some of the ways in which these systems can also impair the authorized access of the elderly and people with disabilities. These systems must comply with the same code requirements as mechanical hardware, but architects and security consultants should also take into account some of the accessibility concerns that may not be addressed by codes.

For instance, there are several types of readers and credentials that are difficult, if not impossible, for people with certain disabilities to operate. A keypad that requires a high degree of manual dexterity to enter a code will prove far more challenging than a proximity reader. Be sure to consider whether the use of potential products

will be appropriate for occupants of ages and abilities before making any decisions. Being aware of these particular challenges and including appropriate access control solutions as part of the design process will ensure that the system balances the safety, security and convenience of all occupants.

### **Solutions over Sales**

With customers facing more access control choices than ever before, they depend on this industry's advice and experience to help them formulate a practical security plan and select an appropriate access control solution. It's vital that each new sales lead is treated not merely as a potential sale, but as an opportunity to build a lasting relationship that will lead to repeat business for your company. The result will be an access control solution for the present and future, and a satisfied client willing to refer you to others. ■

**MINU YOUNGKIN** is the marketing manager for Allegion. She can be contacted at [Minu.Youngkin@Allegion.com](mailto:Minu.Youngkin@Allegion.com).



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# Keeping High-Security Environments Safe WITH MULTIPLE LAYERS OF SECURITY

By Kelly Edney

**No security product or system is** guaranteed to prevent unsafe incidents within a high-security facility, but with the proper security plan and superior hardware devices and solutions in place, the risk of break-in attempts and criminal activity should be mitigated.

As the loss prevention directors of high-security environments—such as banks, hospitals, federal and military facilities, prisons and data centers—know too well, keeping assets safe is an ongoing challenge and number one priority. Whether it's the people that are employed, the money being guarded, or the critical, sensitive information in storage, having the proper level of security starts with recognizing what needs to be protected, as well as when and where.

While trends in security have evolved over the decades—and the fervor to be connected even greater than ever—there are various levels of high-security methodologies that should be considered before proper, effective decisions can be made and strategies established for protecting high-security environments.

## High-Security Environments

High-security environments can be a secure room, sensitive compartmented information facility (SCIF) or data center that guards against electronic surveillance and suppresses data leakage of sensitive security and military information. There are numerous

Photos courtesy of Sargent and Greenleaf



security solutions available to protect assets, which include biometrics, audio, video, mechanical and electrical locking mechanisms and software. Having multiple layers of security—mechanical, electrical, software or combination of all—raises the level of security of the environment to protect the assets, diminishing the need to put a sentry in place.

Some products and software protecting a high-security environment allow for a device to be scheduled for restricted access outside of normal operational hours. An example of these features dates back to the late 1800s when mechanical time locks were used to prevent the opening of bank vaults after hours. Currently, SCIF applications use pedestrian door locks, approved to Federal Specification FF-L-2890B. This pedestrian door lock uses mechanical and electrical access control and requires the use of a high-security lock approved to Federal Specification FF-L-2740B to restrict access outside of normal operating hours.

“The FF-L-2890B also allows entry to high-security environments via mechanical and electrical access control during the day time when individuals are present, but gives the ability to lock down the environment at night,” said Tom Lowe, Director of Engineering and Government Products, Sargent and Greenleaf.

### The Push for Connectivity

While technology has improved, the desire for connectivity presents a constant struggle between providing the convenience that technology provides and the protection of the assets. If you think of the object that is being safeguarded as being the center of an onion, the layers surrounding that object, then, represent each level of security that is necessary to keep that asset safe. Making the center of the onion connected to a remote command center assigns security responsibility of the asset to the exterior of the onion. The method of connection now becomes critical to the security, especially in protection against surreptitious entry.

### The Many Layers of High Security

The more layers of security, the more an asset can be secured. One of those layers that is constantly in discussion is the increased use of biometrics, which can consist of a fingerprint, palm, facial or retina scan. These scans are put onto a software platform that converts the information into digital

form and compares it to previous biometric data.

The use of approved General Services Administration (GSA) locks is a priority for federal agencies. The new U.S Federal Specification FF-L-2890B is a specification that may be used by all federal agencies. The intent of this specification is to provide door locking hardware that meets high security



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and life safety requirements. Through this specification, the lock must meet applicable requirements of the International Building Code (IBC), the National Fire Protection Association (NFPA), the International Fire Code (IFC) and many others.

Due to the technology advances with electronic and combination locking systems that protect National Security Information (NSI), government agencies must use containers of classified information secured with products compliant to federal specification FF-L-2740B. The files inside these containers can be personal records or organizational secrets. Ways in which locks are specification-approved include numerous rounds of testing before the lock is displayed, as well as throughout the lifecycle of the lock decide which style of lock is appropriate for use in a given situation.

On top of having GSA-approved locks that guard assets, another layer of added security may include the option to integrate additional software to report alerts from different forms of stimulus data. Some high-security trends comprise the use of software that can detect motion or heat near or around the asset.

Software can also indicate if there has been a scanned badge and the time and date of where the badge has been previously scanned. This software can also prompt the server to allow an individual to gain access or not, and can be integrated with a combination of electrical locks, which provide additional security with the use of codes. With special software and the addition of electronics to traditional mechanical locks, the combination has made it easier for those who want to make a push towards connectivity, and still continue to maintain a more secure space.

Many locking products are now on digital platforms, giving the user the ability to encrypt more data that was not available through analog. New technology platforms are more flexible and modular in design, easier to operate and simpler to program. These platforms also provide enhanced security, a consistent user experience, and advanced data management. They also allow information from the features mentioned above to be stored, such as videos, pictures and biometric data.

The multiple layers of security can be integrated into the product itself, rather than going to an external access control center. Digital platforms have

faster communication speeds and can be integrated into larger systems with increased bandwidth, allowing users to have multiple levels of security to keep not only the assets safe, but individuals as well.

## **Life Safety Becoming More Prominent**

For high-security spaces, it's important to protect the asset that is contained inside. However, recent government specifications require the protection of the people, not just the asset. With an increase in active-shooter situations, there is a shift to the direction of life safety and the Americans with Disabilities Act (ADA) compliance.

Previously, locks were able to secure a room, but only able to be locked from the outside, which can be dangerous in life-threatening situations. New products have the ability to safely lock and unlock doors from the inside, allowing those in a room to remain safe in lockdown situations, instead of leaving the room to lock down a door from the outside. Facility managers are continuing to improve the safety of their workers and guests by providing locks that can keep both individuals and products safe.

Although not every solution is perfect, strategic steps can be taken to protect high-security assets with a plethora of feasible, customized options available. Digital platforms, software and biometrics are just a few layers that can be added to a high-security system. ■

**KELLY EDNEY** is Marketing Director for Sargent and Greenleaf. She can be reached at [kelly.edney@sbdinc.com](mailto:kelly.edney@sbdinc.com).

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# SHAKE AND BURN

## *Witnessing a Seismic and Fire Test Up Close*

**By Rick Calhoun**

**Growing up in Northern California,** I have had my share of seismic experiences. As a child, I remember my parents and I waiting out the tremors and then comparing notes on what we each thought the magnitude level was and how close the epicenter was to our location. Most of the time they were mild and lasted just a few seconds. Not a big deal for the most part. However, I will never forget two earthquakes that peaked my interest in our recent seismic test opportunity.

The first one that left an impression on me was in the early 1980s. I was a young carpenter working in the city of Walnut Creek just east of San Francisco. I was on the second floor of an occupied tilt-up office building, in a closet, on a ladder hanging a nine-foot solid core wood door, when I started feeling dizzy. I jumped down off the ladder to collect myself and look for a restroom when I noticed the vertical blinds on the exterior windows swaying back and forth wildly. Then I noticed people coming from everywhere, running around heading for the stairs to get out of the building.

I quickly followed them out, where to our amazement we all witnessed the asphalt parking lot moving up and down similar to flowing ocean waves. All we could hear were car alarms

going off everywhere as vehicles in the parking lot were being bounced around. Everyone froze, not knowing where to run. It was probably 20, maybe 30 seconds in all, but it felt like much longer.

After it had gone quiet, we all looked at each other, and then around the area for any major damage. We checked our vehicles and, noting nothing major, went back inside to go back to work, a little shaken, but quickly back to normal as the lights were still on and we had electricity. That's what people from California do. I do remember the margins on my doors not being quite the same as I had left them. I had to go back and readjust.

### **Loma Pietra Earthquake**

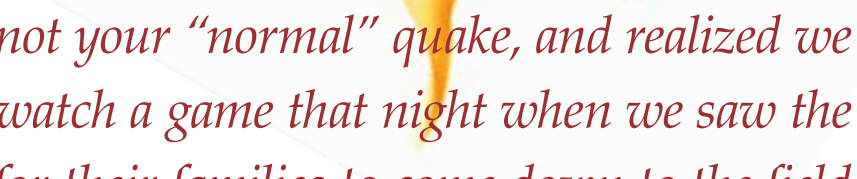
The second one was much larger, and I remember it like it was yesterday. It was the Loma Prieta earthquake in 1989. It was remembered as the World Series Quake, and I was there at Candlestick Park waiting to watch the Giants and As play. I was an A's fan, and back then they had an incredible team, with Ricky Henderson, the bash brothers in Jose Canseco and Mark McGuire (including their performance enhancers), and an awesome pitching staff headed by Dave Stewart; as well as an ultimate closer in Dennis

Eckersley and Tony La Russa, their manager. They ended up sweeping the Giants in that series.

I was sitting in left field, first level, under the overhang, awaiting the start of the game. My nephew and I were drinking our beers, eating our peanuts, and watching the players warm up. We suddenly heard and felt a rumble, which at the time we thought was the crowd stomping their feet. So our section all joined in and started stomping ourselves. We then noticed the large light poles swaying and the lights going out.

Luckily, it was still light out, or it would have been mass hysteria. I still think about how different and scary it would have been had it been dark at that time. There was little to no cell phone use then, so information about what was happening was slow to come. I remember a group of us surrounding a guy who had a very small, battery-operated hand held television. We were stunned as we viewed the coverage of the Bay Bridge and Oakland highway collapse, along with the San Francisco fires. We all then instantly looked up to see if there were any fractures in the tons of concrete above our heads. We quickly moved down from under the overhang just to be sure.





*We knew this was not your “normal” quake, and realized we were not going to watch a game that night when we saw the players motioning for their families to come down to the field where they were grabbing their children, helping their wives and parents onto the field, and walking out of the stadium.*

We knew this was not your “normal” quake, and realized we were not going to watch a game that night when we saw the players motioning for their families to come down to the field where they were grabbing their children, helping their wives and parents onto the field, and walking out of the stadium. I do not remember any official announcement; I don’t think the public address system was working, but it was obvious that if the players were leaving, there would be no game.

The crowd started moving outside, all the while looking around for any evidence of any structural damage. I could not wait to get out of that stadium. Walking/running out to our vehicle, I remember seeing the odd sight of some players in the parking lot still in their uniforms getting in their cars and leaving very quickly. By the time we got to our vehicle, the parking lot was gridlocked. It took us more than three hours to just get to the freeway which was less than a mile away. By that time, it was dark, but we could see a glow coming from over the hill north toward San Francisco.

Candlestick Park is just south of San Francisco, and we wanted to get on Highway 101 south to get back home to Livermore, just 40 miles southeast of where we were. The problem was that no one wanted to go north toward San Francisco as the Bay Bridge had collapsed and was closed, and we heard on the radio that San Francisco was burning. After sitting a very long time in the southbound lane on-ramp, we had the bright idea to head north

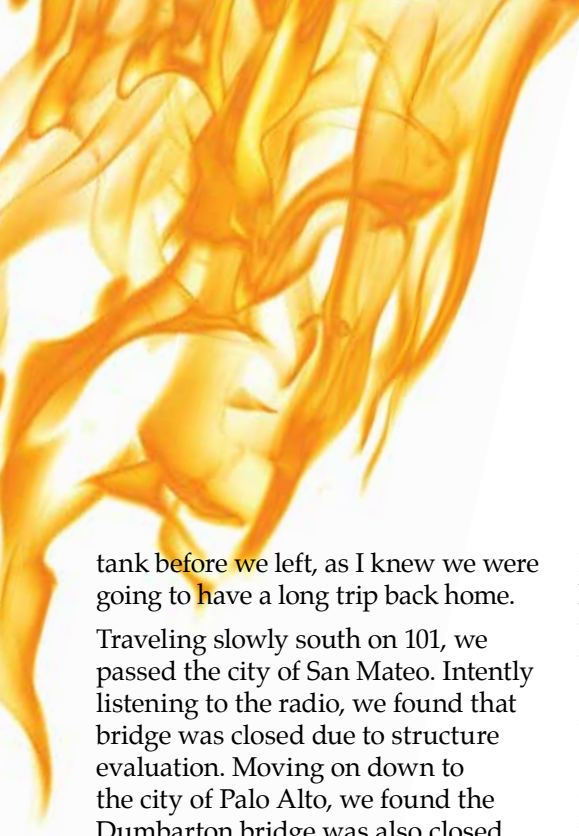
and find a way to turn around at the next exit. We had made it just over the hill when we saw the incredible landscape of fire and smoke of the shaken San Francisco skyline. My nephew and I looked at each other, and both said “no way.”

We quickly made an illegal U-turn right in the middle of the freeway

and started heading south down the peninsula. Luckily I had a lifted four-wheel-drive truck at the time, so I was able to get through the ditch and brush divider easily. There was no sign of power or lights anywhere in sight. It was an eerie feeling to have the whole peninsula so dark. I remember thanking myself for filling up my

*“I was surprised how well the steel doors performed in containing the fire, and also how well the hardware kept the door latched. There will certainly be reviews by our industry partners on the performance of the door, frames and hardware from this severe testing. This shake and burn test will provide insight as to what our industry should review that may lead to improvements to both the products and installation methods used in constructing fire-rated door assemblies. The Foundation is proud to have participated as a supporting partner in this continuing effort to review, test and upgrade products which are required to maintain public safety.”*

*—Paul Baillargeon, Vice President,  
Technical Consultant, Door Security & Safety Foundation*



*When I was approached by Cemco, a company that provides steel framing products, structural load bearing wall panels and fire-rated wall systems, to be involved in some seismic testing, I was intrigued.*

tank before we left, as I knew we were going to have a long trip back home.

Traveling slowly south on 101, we passed the city of San Mateo. Intently listening to the radio, we found that bridge was closed due to structure evaluation. Moving on down to the city of Palo Alto, we found the Dumbarton bridge was also closed due to structural evaluation. We had to go all the way down to the city of Mountain View to cross over Route 237, just south of the bay.

As we crossed the peninsula, we started to see lights in areas. At that time, it would have been hard to believe we would return to that stadium just a week or two later to continue watching that series. Good thing I saved my ticket stub!

The quake hit around 5 p.m. PST, and I remember pulling up to my house around 1 a.m. My wife and my two-month-old son were at the door waiting for me. I had no phone, so I was not able to let her know I was alright. The first thing my wife did was scold me for not being there for her and my son, and then she gave me a hug and started sobbing. As I wiped her tears away, she began to tell me about her experience with the rumble she felt, along with the short loss of power.

What most hit her was the three to four feet of water we lost from our swimming pool that splashed up against the house. She said it was like taking a full bowl of water and shaking it until half of it was empty. I was surprised our single pane plate glass windows held up to the impact of all that water.

It could have been really bad as she held my son and stood next to the window frozen in amazement at the water movement, before she realized she better get out of the house in case the window broke or the ceiling came down on them. Structurally, we had a few cracks in our drywall, but surprisingly, my pool did not have one crack in it—just needed a fill up.

At the time of the quake, my boss, Jim Gross, lived on Loma Prieta Avenue in the Santa Cruz mountains—right at the epicenter. He later told us he and his wife were getting ready to watch the game on TV when his house, which was built on a slope, lost its underpinning (structural posts) during the tremor, causing the back of the house to drop 10 feet, separating itself from the garage, which remained on top of the hill. He and his wife had seconds to grab their cats and jump from the house to the garage. His house was a total loss. A nationally televised documentary later included his story and the devastation in his area. He rebuilt a new home in the same location, this one with the latest and greatest structural seismic bracing and tie downs available at the time. Jim was a great guy, and I owe a lot to him for giving me my first opportunity to come into the office from the field.

### **Seismic Test Provides Opportunity**

I started my article with my personal experiences because they demonstrate the need for people who experience these seismic events to exit a structure safely; some very quickly. That exit included getting through door openings

that would allow them safe egress. It got me thinking—there must be something we could do as an industry to look into a way of improving the odds of this happening. For those of us in California, it is not if the next big quake will hit, but when.

So when I was approached by Cemco, a company that provides steel framing products, structural load bearing wall panels and fire-rated wall systems, to be involved in some seismic testing, I was intrigued. Once I saw what was being tested and how it was done, I was sold on participation. They were looking for a door contractor to donate some material and labor to install some interior door openings in a six-story structure they planned to seismic test and then set on fire. I was warned early on to be prepared to get my feelings hurt, as the professors planned to push our products and installations until they failed. They guaranteed it was going to happen. As far as I knew, our industry had not tested for seismic and fire testing before. Shake it and burn it—sounded like fun to me.

### **A Team Effort**

I looked to some of the manufacturers we partnered with to ask for material and a financial donation to help with the test, which I was told was going to cost approximately \$1.5 million. I quickly received the go-ahead from each, and we were off.

Our company, Walters & Wolf Interiors, provided the labor, along with our partners Allegion, Door Components, Marshfield Door Systems, and Wilson Partitions, who



The building getting ready for the first shake test.

participated in furnishing whatever material I asked for along with helping us with the donation. The Door Security & Safety Foundation also participated in the donation, and together, they all stepped up to help make this happen. Without their support, we would not have been able to participate. I had a group of quality organizations with quality individuals involved. I thank them all for their effort and interest in this venture.

The six-story steel structure was built at the NHERI facility at the University of San Diego, where more than 100 seismic tests had already been performed. Government sponsorship was provided by the Department of Housing and Urban Development and the California Seismic Safety Commission.

The test site consisted of a shaker table measuring 25 ft. x 40 ft. that was hydraulically powered to move a 2,000-ton payload capacity up to 30 inches in one direction. This is currently the largest shaker table in the world. They are looking for additional funding to go multi-directional.

The building was fitted with 250 sensors, 40 cameras and a GPS system to help gather data. A 24/7 live camera feed during the construction process would allow all involved see the building go up. The website—[cfs-research.uscd.edu](http://cfs-research.uscd.edu)—highlights our test, along with some general information showing some of the tests, including some structure collapses. Check out the media section and the article, *Could This Building Protect You from the Big One?*, along with clicking on the NHERI tab and checking out the virtual tour. We had a six to eight-week window to construct and remove our test building. My project manager, Nate Marshall, and I flew down to San Diego to meet with the team and discuss logistics and the tight schedule.

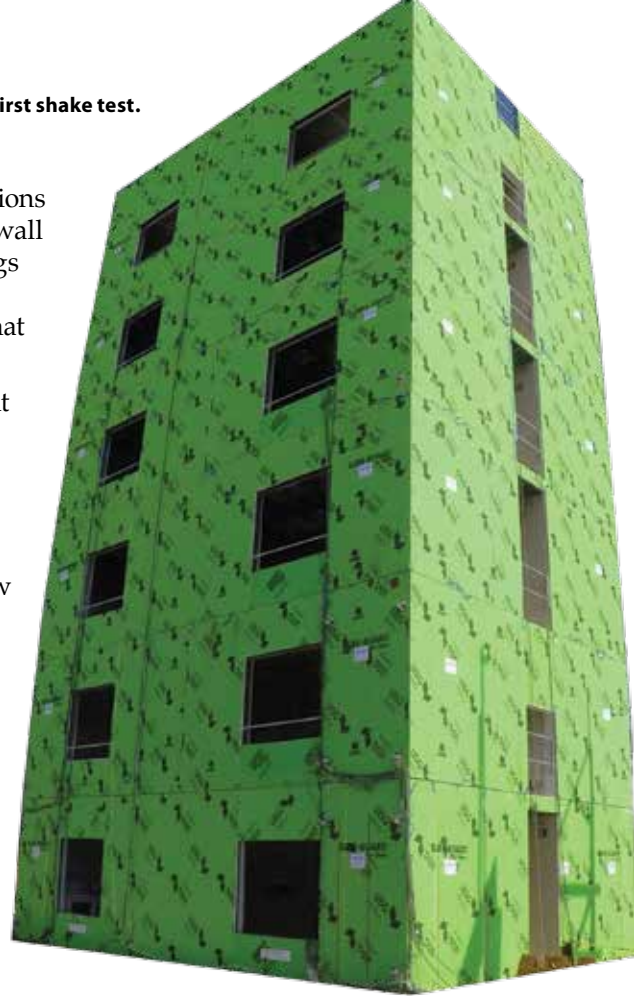
### Openings Details

We were given the opportunity to put together our own door schedule using

the products, sizes and configurations we wanted to test out. Due to the wall layout, we put together 22 openings (two on the first floor and four on the second through sixth floors) that included:

- A combination of seven, eight and nine-foot door heights.
- Aluminum, hollow metal-welded and KD frames, including some sidelights.
- Aluminum, wood and hollow metal doors, with and without vision lights.
- Cylindrical, mortise, concealed cable devices, closers and miscellaneous hardware components.

The second and sixth floors were also going to be also burned, so we put 20 min.-rated products on one floor and 60-minute on



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*The test days were going to range a span of three weeks, starting with shaking at various levels, burning, and then more shaking.*

All photos courtesy of Rick Calhoun



**Second floor corridor burn.** The fire was set on the other end of the building, but most of the flames traveled down the corridor out this other side.

the other. We wanted to see how the different product combinations performed along with their installation methods. All the companies involved were on it, and my team, along with our suppliers, came through flawlessly to put this all together within a few short weeks.

We were limited to the size and type of installation method based on the type of wall construction. The exterior and center corridor walls were prefabricated and erected on site. The corridor openings could be no larger than 3'6" in width with the wall throat size at 4 7/8" and one-hour rated. This required us to use a three-piece type frame construction at these locations. Only the perpendicular walls were to be stick-framed on site, being also one-hour rated walls.

We were able to install two corridor openings—one on each side of the wall—and two door openings—one in each wall on either side of the corridor. There we used mostly one-piece welded hollow metal frames, but also included our own sliding aluminum and glass door system. There were no closed windows, stairs or elevators



**This door was burned from both sides hours apart and still stayed latched. What is normally a very heavy door turned into a what felt like a piece of balsa wood in weight.**



**The intumescent kicked in, sealing the door and smoke successfully.**

in this test. Access was by an exterior scaffold and JLG-type lift.

### Time to Test

The test days were going to range a span of three weeks, starting with shaking at various levels, burning, and then more shaking. There would be media days involved with coverage by *National Geographic* and the *Discovery Channel*, among others. The fire test would come after the first two quakes and before the last big one. The idea was to replicate the Northridge Earthquake of Los Angeles in 1994 (6.7 magnitude), and then the Cape Mendocino quake of 1992 at 7.2 magnitude; burn floors two and six, and then shake it again to replicate the Chile Earthquake of 2010 (8.8 magnitude).

They wanted to see if the building would still stand. Past tests on other building construction types showed condemned conditions, including some collapses at this point. We were able to fit in two visits—one to witness the first shake test and one for the first

fire test on the second floor.

Witnessing the earlier shake test was not as dramatic as we had thought it would be, until we were able to go back inside the building to see the effects of what the movement did to our openings. The building moved back and forth with the length of the corridor making those openings taking on the brunt of movement as they moved side to side. I was told that the openings in the perpendicular walls only felt 10-20 percent of the movement as the corridor openings did.

All of the time we spent making sure our openings were compliant with NFPA 80 standards drastically changed after the shakes, particularly the clearances and margins. After our installation, I sent my FDAI inspector Chris Banda to go over every door opening to make sure they were all compliant. After we saw what the movement did to our openings, we went into the fire test very nervous about how we were going to perform.





Firemen taking a look at the room before we were allowed to enter. Notice the veneer on the 60-minute-rated wood door gone on the fire side along with the door handle melted. This door stayed latched.

The fire tests were much more impressive to witness. We had to wait for the San Diego fire department to show up each morning before we tested, and were alerted that the test permit could be pulled any minute up to test time due to the heat, wind and current fires in southern California. As it turned out, we lucked out and all the tests were performed on schedule. The second floor was burned four times in different rooms over two days. This floor had 60-minute-rated openings installed.

On the third day, the sixth floor had two burns in two different rooms. This floor was installed with 20-minute-rated openings. The fires were started by igniting pans of heptane

Close up of what a cylindrical lock handle looks like after 15 minutes of 2,000 F. Still latched.





liquid fuel that were on the floor. The typical burn lasted only 10 to 15 minutes, but reached more than 2,000 degrees Fahrenheit within seconds. We were told they were calling it "flash burns" which are much different than our industry's controlled time, temperature curves and chamber environment fire tests.

In the real world, the amount of oxygen getting to the flames greatly affected the heat and duration of the burn. At times we saw flames up to three-feet-high go right under the 3/8" undercut of our doors to the non-fire side for short 10 second bursts to back off, and then come back a few seconds later. The amount of smoke that moved from one side of the room to the other during the fire was also very surprising, even with all our listed gasketing installed and adjusted.

We were very impressed with the performance of our openings, considering what they went through with the shake and burn. The state of California needs our industry to include movement in our fire testing and code requirements, acknowledging that tolerances are not going to be held, after even a small quake. We witnessed some large gaps in doors and frames, anchoring methods particularly on three-piece frames that are approved but not really effective; latch bolt failure due to the stress put on them from the massive up and down, in and out movement; and excessive smoke movement when the heat melted away our smoke gasketing very quickly. We plan to discuss and address all of these items with our partners.

The photos included with this article do not give justice to the experience of feeling the movement, watching the flames, feeling the heat, smelling the aftermath, and seeing the devastation afterward. The combination of movement before a fire adds much more complexity and presents a real challenge to our industry to make our openings safe to egress out of a building.

As I was writing this article, I was notified that the last "big" shake test went well, and the building still stood,

along with our door openings. UCSD is applying for more funding to perform additional tests over the next few years, and would like our industry's participation. I am excited about the opportunity to get in front of this, and make a difference for all those people who may need to use our products and installations to save their lives when that day does come. ■



**RICK CALHOUN** is the President of Walters & Wolf Interiors. He can be reached at [rcalhoun@waltersand-wolf.com](mailto:rcalhoun@waltersand-wolf.com).

# Some Doors Are Meant To Stay Closed



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# MYTH BUSTING: FIRE-RATED GLASS DOORS

## *Shut the Door on Common Misconceptions*

By Jeff Razwick

Frames and doors with fire-rated transparent wall panels,  
Johnson & Wales University Center for Physician Assistant  
Studies, Providence, R.I.

**Safety and visibility.** For many building industry professionals, these two words sum up the purpose of fire-rated glazing in doors. The reality is, they only begin to describe the scope of the doors' functionality. From decorative entryways to doors with adjustable privacy, fire-rated glazing can work in conjunction with its surrounding door components to defend against fire while meeting supplemental design and performance goals.

Unfortunately, due to the size and optical quality limitations associated with first generation fire-rated glazing, misconceptions about its capabilities in doors still exist. To set the record straight and help building teams use the material to its full potential, here are some of the most common fallacies about fire-rated glazing in doors.

### **1. Fire-rated glass doors cannot resemble ordinary doors.**

Fire-rated glass doors were once easy to identify with their thick, fire-rated frames and traditional wired, fire-rated glass. Today, thanks to manufacturing advances, thousands of people pass through fire-rated glass doors every day without realizing it.

Not only do building industry professionals have access to clear and wireless fire-rated glazing, they can also select from products with a nearly distortion-free viewing surface. For example, fire-protective glazing products, such as fire-rated ceramic glass, can be ground and polished on both sides. The resulting glass has a smooth surface finish, high visible light transmission and low reflection, making it ideal for doors where higher clarity is desired.

Even high-performance fire-rated glazing, such as fire-resistive-rated transparent wall panels often used in temperature rise doors, can offer nearly the same level of visual clarity as ordinary float glass. These products typically incorporate multiple layers of glass that sandwich an intumescent interlayer that turns opaque

All photos courtesy of Technical Glass Products, except Johnson & Wales University, courtesy of Heidi Gumula/DBVW Architects.





**Fire-rated glass ceramic, Brooklin High School, Brooklin, Ontario**

and foams up during a fire. Their multi-laminate makeup provides exceptional clarity and visibility in applications required to meet strict fire-rated criteria by code.

To further ensure fire-rated glass doors match the aesthetic aspects of traditional aluminum or wood frames, building industry professionals can select from advanced fire-rated framing options. A case in point is new generation steel fire-rated frames. The frames are formed in an extrusion like process that results in thin profiles, with well-defined edges that more closely match the look of non-rated doors. Where necessary, design teams can specify these frames in a wide array of colors, materials, and finishes. This helps prevent scenarios in which the fire-rated frames provide the necessary fire protection, but the frame color and material conflict with neighboring door, window and curtain wall applications.

## **2. Fire-rated glass cannot be the aesthetic focus of a door design.**

Codes drive the specification of fire-rated glazing in doors—not voluntary design decisions. As such, a longstanding perception is that fire-rated glass is a hindrance to door designs. This is particularly true in applications where it is desirable for the glass' aesthetic to be the focus of the fire-rated door. Standard

decorative glass treatments, such as custom etching and sandblasting, can create eye-catching doorways. However, applying these treatments to fire-rated glass may compromise its fire and life safety performance.

To resolve this dilemma, manufacturers and suppliers now offer fire-rated glass with decorative treatments that maintain its integrity. For example, fire-rated glass is available that can be lightly sandblasted or etched while still maintaining its fire rating. It can also be combined with colored, tinted or other decorative glass as part of an insulated glass unit (IGU). In either instance, the flexibility to vary the surface of the fire-rated glass provides a crucial design benefit for doors that serve as a character-defining feature of a building.

## **3. Only small glass sizes can be used.**

When traditional wired glass was the only glazing material offering fire protection, little thought was given to light transfer and possible vision area in fire-rated glass doors. In large part, this was because codes limited fire-rated glass to 100-square-inch vision lites in doors with strict fire-rated criteria. While such doors enhanced visibility between spaces compared to fully opaque doors, they only had a marginal impact on daylighting or aesthetic goals.



**Doors with fire-rated glass ceramic, the Morgan Library and Museum, New York, N.Y.**

As new fire-rated glazing choices entered the market, an interesting transition took place. Suddenly, there were products in larger sizes with the ability to meet temperature-rise criteria. Today, due to these improvements, if a full-lite, fire-rated glass door is desired by the architect or building owner to enhance light transfer and improve the comfort of the interior environment, a code-approved, fire-rated glazing solution is almost always available

Be it a simple 20-minute fire door used as an office entry, or a 90-minute temperature-rise fire door in a critical fire exit stair, full-lite glass door options are available to maximize daylighting, security or aesthetic demands of the project. When installed with matched side lites and transoms, or as part of an overall fire-rated curtain wall or storefront assembly, it can allow great amounts of light to transfer between spaces with stringent fire and life safety criteria.





Steel doors and frames with glass ceramic, University Hospital, Seidman Cancer Center, Cleveland, Ohio

#### 4. Fire-rated glass doors cannot balance light transfer with privacy.

In select applications, doors designated to provide fire protection by code may also need to balance light transfer with privacy. A case in point is fire-rated glass doors in patient-focused areas of healthcare centers, which must provide visual and acoustic privacy to maintain compliance with the Health Insurance Portability and Accessibility Act of 1996 (HIPAA). While it was once challenging to find products that offered this challenging mix of performance benefits, solutions are now available that make this task possible.

For fire-rated doors where adjustable privacy is preferable, such as a hospital treatment room that must balance ongoing staff monitoring of patients with auditory and visual privacy, a solution is adjustable louvers set between hermetically sealed panes of fire-rated glass. The fire-rated glazing blocks the transfer of radiant and conductive heat for up to 90 minutes, while the louvers can be positioned so that vision and light are permitted into one area, but are limited in the opposite direction.

#### 5. Fire-rated glass doors provide only minimal impact safety.

Prior to the 2006 IBC, fire-rated glass in doors was only required to satisfy minimal impact performance requirements, even in areas that would normally be required to provide high-impact tempered or laminated safety glazing by building code. Today, all fire-rated glass in doors must meet the higher impact safety requirements for glazing. This also typically applies to fire-rated glazing adjacent to or near the door, including side lites or glass located near the floor.

Thankfully, building and design teams have numerous fire-rated glazing products at their disposal that meet this criteria. Some fire-resistant transparent wall panels, for example, defend against the spread of fire while simultaneously providing up to Category II (Consumer Product Safety Commission [CPSC] 16 *Code of Federal Regulations* [CFR] 1201, *Safety Standard for Architectural Glazing*) impact-safety ratings. These products do not shatter, or shatter in a safe pattern, when struck by an object comparable in impact to a full-grown, fast-moving adult.

Select fire-rated glazing products also have the capability to provide

Today, all fire-rated glass in doors must meet the higher impact safety requirements for glazing. This also typically applies to fire-rated glazing adjacent to or near the door, including side lites or glass located near the floor.

supplemental security protection in doors. For example, bullet-resistant fire-rated glass is available to help delay intruders and prevent tragedies during firearm attacks. For example, fire-resistant transparent wall panels are available as a single glazing panel with up to a Level III bullet resistance rating and two-hour fire ratings.

#### Conclusion

Today, the reality is there is no need for building teams to simply resign themselves to accepting non-aesthetic fire-rated glazing in doors to improve safety and visibility. Instead, they can look at an individual project and consider all the needs, both aesthetic and functional, and use fire-rated glazing to achieve their specific goals. ■



**JEFF RAZWICK** is the president of Technical Glass Products (TGP), a supplier of fire-rated glass and framing systems, and other specialty architectural glazing. He writes frequently about the design and specifica-

tion of glazing for institutional and commercial buildings, and is a past chair of the Glass Association of North America's (GANA) Fire-Rated Glazing Council (FRGC). Contact him at [JeffR@fireglass.com](mailto:JeffR@fireglass.com).

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# BIM FOR DIVISION 08: MORE THAN JUST GEOMETRY

By Aaron Maller

## *How BIM Content Can (and Should) Be Informing You about Hardware and Accessibility*

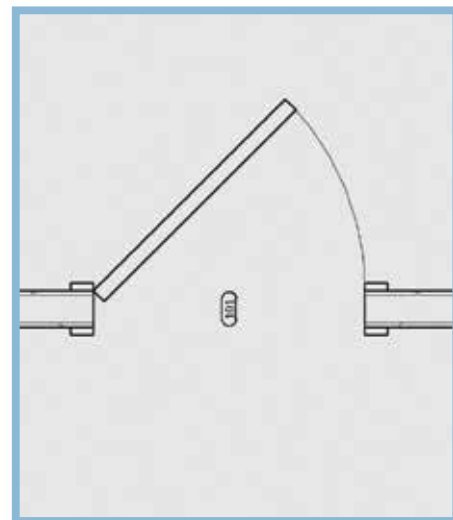
**To say that I'm partial to analyzing the** technicalities involved with Division 08 (doors and hardware specifically) from both a Building Information Modeling (BIM) and an architectural perspective, would be a gross understatement. During the third year in my architectural career, I took a position in upstate New York working on large scale retail (shopping mall) projects: new builds, renovations, and some that were a combination. The first of those projects—two million square feet with six phases, a partial renovation, and partial new construction; where exterior walls were becoming interior walls, interior walls were becoming exterior walls, and thousands of doors and aluminum storefronts were being added, across some 14 buildings.

If ever there was a trial by fire project of doors and hardware for someone new to architecture, this was it: some

doors getting partially replaced, others swapping hardware only, others getting retrofitted for new stores, and others brand new to match existing.

Adding to that complexity, my entire project team was less than two years into delivering projects in BIM. Having worked in a few other platforms (one of which demanded all custom content) the firm I was with was working in Revit software. At the time, they were using the standard "Out of the Box" (OOTB) component library that ships with Revit. As we embarked on our 18-month journey of that shopping mall, we were all too preoccupied with other things (design, tenants, documents, schedule, phasing) to worry about exactly how the doors looked. It wasn't until we began coordinating openings that we stopped and said, "There has never been a door built on any construction site that looks like this."

It had a frame (or is that simply wall trim?) that mounted to the face of each side of the wall (with nothing in the jambs), and the jambs themselves had no size to them. The door was exactly



Revit Out-of-the-Box Door



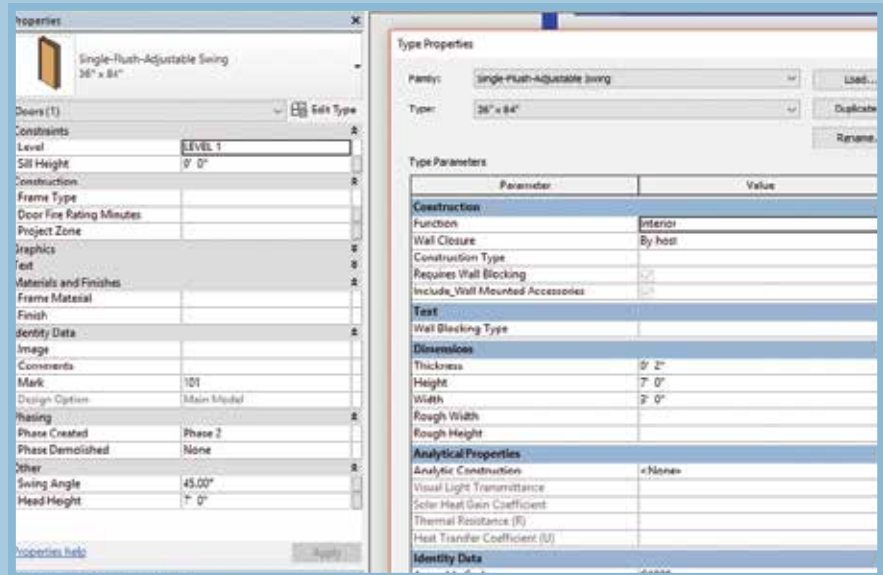
the size of the panel/leaf, and nothing more. The panels/leaves weren't changeable or swappable, without making new components.

It probably goes without saying that throughout that project (and many like it), a lot of notes were included in the door schedule to make things right that never made it into the 3D model (or the 2D drawings based on the 3D model). How could we even talk about hardware, accessibility, and complex features of the doors, when we weren't equipped to even show the doors (graphically) correctly!?

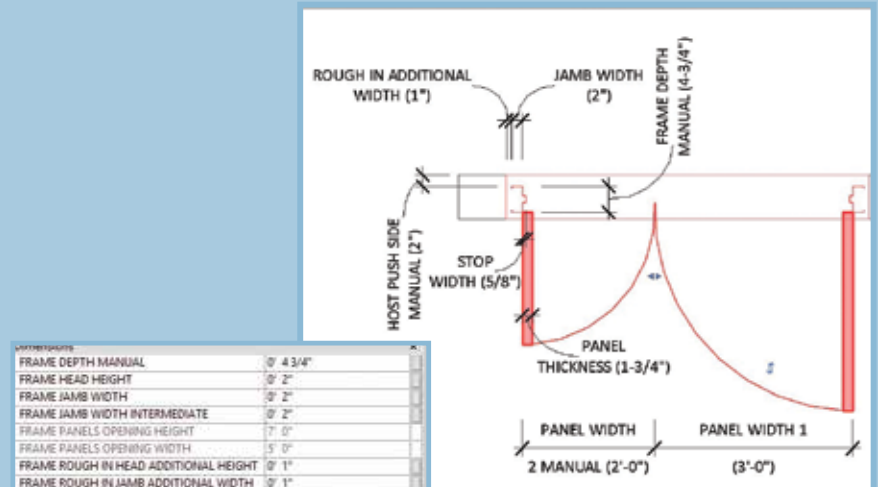
To be fair, the "Out of the Box" door library is meant to be a very basic starting point (I hope!), and it doesn't afford you very many options. You can change some basic data about the object itself, and you can change some (basic) size parameters—width, height, thickness (of the leaf). Anything more than that, you need to create a new component (or a copy of the component) and make more permanent edits.

Skip ahead a few years, when I took on a new role as BIM Manager for a Dallas-based design/build firm. I had managed BIM implementation for a few years at that point, and had already been experimenting with various techniques for creating all of the different "components" or "parts" that I thought needed to be there, to properly manage "real doors."

As I kept learning more and better ways to create the library, I was forced to start from scratch several times. Eventually, we would start to keep track of these "Twiceroadsfool's Door Libraries" on the website RevitForum.org, (where a couple of versions were posted for free download over the years), for the Revit communities' use. Many of the features added over the years were pretty standard, as far as doors go—the ability to change any component's size; swap components out; swap extrusion profiles out; and a big one for Revit—to handle the frame depth independent of the walls thickness.



Revit OOTB Single Door Options



Parallax Door Parameters

FRAME DEPTH MANUAL	0' 4 3/4"
FRAME HEAD HEIGHT	0' 2"
FRAME JAMB WIDTH	0' 2"
FRAME JAMB WIDTH INTERMEDIATE	0' 2"
FRAME PANELS OPENING HEIGHT	7' 0"
FRAME PANELS OPENING WIDTH	5' 0"
FRAME ROUGH IN HEAD ADDITIONAL HEIGHT	0' 1"
FRAME ROUGH IN JAMB ADDITIONAL WIDTH	0' 1"
FRAME STOP WIDTH	0' 0 5/8"
FRAME THROAT OFFSET EXTERIOR	0' 0 7/16"
FRAME THROAT OFFSET INTERIOR	0' 0 7/16"
HOST PUSH SIDE MANUAL	0' 2"
Height	7' 0"
PANEL HEIGHT	7' 0"
PANEL THICKNESS	0' 1 3/4"
PANEL UNDERCUT	0' 0 5/8"
PANEL WIDTH PANEL 1	3' 0"
PANEL WIDTH PANEL 2 MANUAL	2' 0"
Width	10' 0"

Each version was the culmination of the previous version's successes, but also, more importantly, the previous version's failures. What had project teams wanted from their doors that they couldn't achieve?



Each version was the culmination of the previous version's successes, but also, more importantly, the previous version's failures. What had project teams wanted from their doors that they couldn't achieve? In the first few versions, the requests centered around the geometry—I need this variation of frame, or this extrusion profile for a building. Creating a modular system of components allowed the system to be very accommodating.

As time went on, however, the requests became less about needing more variations on geometry, and more about wanting to have checks and balances about the data integrity in the documents and specs.

- Was unsightly or undesirable door hardware being specified or scheduled on doors in high profile or high visibility areas?
- Were project teams missing coordination between architects, door hardware consultants, and electrical engineers (and thus not letting general contractors know) where low voltage hardware needed to be run to the doors before installation?



- Were door frames being placed in thick-cavity wall constructions, making them non-ADA compliant, due to the amount they were recessed in the wall?

Inevitably, discussions involving doors and hardware in “design” often turn into discussions about “who needs to provide that information,” a pragmatic question when we want to make sure the devices we use for quality control are only populated with the “correct” information by the correct party.

For us at Parallax, this begot the question: If we create the series of components that allow representation of the true state of affairs to happen in the model, can’t we then aggregate the correct data from multiple parties, in a BIM-file-format-neutral solution like Excel? The short answer to that question is: yes we could, and yes we can.

If each component has simple and predictable options for what hardware is included, and what collaboration or information is needed (does Electrical, Data/Telecom, or Security need to review this door and provide something for it?), information could be pulled in to the model from the various parties, and the model could then begin to inform us about decisions we need to make:

- It could warn an architecture team that a simple variation in frame depth (in an attempt to avoid corner guards!) and placement in a wall jamb is the difference between ADA compliance and non-compliance (so just spec the corner guards!)
- It can automatically “call out” doors that other parties need to review, when they look at specific coordination views in the model, based on data filled in by a door hardware consultant (in MS Excel) or by the architect (in Revit).
- It can warn designers when minor size changes mean a door no longer adheres to accessibility codes.

- And of course my personal favorite: when “design intent” doesn’t jive with required hardware components, and the results are less than desirable, we can see it ahead of time.

The creation of the Parallax Door Library was a venture in trying to strike the balance between what an architect selects for doors in design—something of a specific design and intent, but generic in nature, but with real-world requirements and accepted data standards for the real manufacturers of Division 08 goods. Only when we take the generic, and give it enough data to become specific, can we expect to see the specifications in alignment with what we thought we were asking for.

While embedding all of the information required for hardware propagation and accessibility compliance checking in to each different door action took a large time investment, the dividends in seeing architectural

teams able to properly document doors without resorting to “hiding the model” and “drafting and faking” was well worth the effort. The 8th version of the Door Library was just recently completed and is now available for purchase to architects, engineers and contractors alike. ■



**AARON MALLER** (twiceroadsfool) has been implementing BIM and practice technology software for over a decade at architectural, engineering, and general contractor firms across the country. He is now providing implementation consultation and support through his company, PARALLAX TEAM ([www.ParallaxTeam.com](http://www.ParallaxTeam.com)). Passionate about technology and architecture, he’s an avid contributor on RevitForum.org and around the world in various technological communities. Email him at [AaronMaller@ParallaxTeam.com](mailto:AaronMaller@ParallaxTeam.com).

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# IOT MEETS DOOR SECURITY FOR AN EDUCATIONAL FACILITY: GADGET OR OPPORTUNITY?

By Bernhard Mehl



Installing the bluetooth/NFC reader using CAT5 wire.

**In an era of growing uncertainty,** schools are facing the increasing challenge of enabling access to students and faculty while maintaining the tightest security protocols and standards. The goal is simple: keep unwanted visitors and potential threats out, control who is coming in, and make sure that no one has access to the building when they shouldn't. These requirements create challenges with the turnover of students every semester, the onboarding and offboarding of staff and faculty, as well as the need to customize access to the building for specific user groups.

The growth of internet-capable devices, known traditionally as the Internet of Things (IoT), has been in use with home automation products for some time but, until now, has been sparsely used in educational settings. Anoush d'Orville, director at IT consulting firm Scull's Angels, was tasked with

finding the most advanced, yet simple to install door control solution to enable secure entry to a four-campus education facility in upstate New York. He wanted to find something that integrated into his network rather than the local systems common throughout the market today.

After an initial scan of industry trends, his eye caught the IoT

industry, which McKinsey estimates to have a \$6.25 trillion impact by 2025. Connected sensors, apps and actuators increasingly allow control of physical devices, allowing for centralized, web-based, and real-time control of entire facilities. His strategy materialized—if every student, faculty, or staff member could be given an app allowing them to authenticate at the access point against a real-time managed database, the burden of security would be greatly diminished. The IT manager could build provisioning and de-provisioning flows to fully automate and remotely manage door entry, rather than having to hand over cards to every single student, faculty or staff member.

More importantly, restricting access for departed members of the school community would become much easier. Rather than trying to collect badges

from dozens of people, this person would now have a convenient console from which to enable or disable access, thereby saving huge amounts of time and stress.

After digging into new players in this industry, d'Orville found that, besides the home automation systems, there are a few companies who focus solely on access for businesses and large organizations. He found KISI to be the most exciting and sophisticated of all the possibilities on the market. What convinced him of KISI were the additional features, such as the publicly available Application Program Interface (API) for technical integrations; the U.S.-based production of their hardware and software system; and the remote ability to access an audit log of any individual who came in the building. The latter enables concerned parents to call in the school's management inquiring about their children showing up at school. Questions such as these could now be answered with certainty and without wait time.

The school's IT Director was excited. "This modern angle on security solves two of my biggest concerns: continuing to position our school as a 21st-century learning facility through leveraging the Internet of Things, while ensuring an elevated level of security that simply wasn't possible with our old entry system," he said.

While implementing the solution, d'Orville, along with his team at Scull's Angels, discovered a few differences to regular access control systems. They ran Ethernet wires to all 12 doors and installed a decentralized controller unit over each access door. The need to run everything to

one single communications closet was obsolete. They used the mobile app provided by KISI to connect the controllers to the internet. The best part was that the existing fob system was not at all impacted, and all electric strikes and magnetic locks could be left in place to be used by both systems—the new KISI App system as well as the current fob system.

Once the hardware was set up, the software was quick to follow. Immediate insight into which doors are online, group access policies for each campus, and monitoring unlock events were made instantaneously available to the school from the moment the setup and installation were finished. Taking only approximately six hours for 12 doors, d'Orville estimates that installing a KISI system might be three times faster to provision than current systems, and sees the reason in "the cloud-based features that solve complexity with software rather than with complicated hardware setups."

The KISI mobile app can also be customized with the school's logo and colors. On top of that, custom welcome messages can be programmed for different days or times. One of KISI's founders, Maximilian Schuetz, explains the value. "Our location-based micro-messaging service allows people to connect to the facility they

are entering; be it news around an upcoming sporting event, a warm welcome, shoutout for the new class, or a heartfelt goodbye note for a beloved professor," he said. "It's a new communication channel that doesn't annoy and doesn't fill up a person's email inbox every day."

### How it Works

From his mobile app, the IT administrator can set messages for certain doors or groups based on the time of day or type of door that is being accessed. When the door is unlocked, a 40-character long message appears in place of the unlock button and disappears after two seconds to show the regular unlock button again.

"This is in-sync with the Snapchat generation that doesn't get along with Twitter's length of messages and are looking for immersive, real-time and location-based augmented reality experience," Schuetz said. "This feature is just starting to show a glimpse of its potential, since many students and faculty members have already started to enthusiastically share a lot of ideas for further development."

The school opens its newly-connected doors this September and expects around 800 students, faculty and staff



Entering the facility using a mobile credential.

to use the App on the first day. For Scull's Angels, this also means an entirely new approach to security and remote management for their clients: saving initially on installation time and hardware cost while maintaining a recurring yearly software license for automatic monthly over-the-air updates and security patches of firmware, web management portal and mobile apps.

"In facing the ever-evolving security concerns of our present time, you want to ensure that the investment you make today is scalable and relevant in three years," d'Orville said. "Rather than having a system that ages with time, the cloud-based foundation of the KISI system ensures that it stays secure and up to date into the future."

His vision of security goes far beyond the traditional perimeter, as he sees door security just as "the first point of contact in a series of authentication elements along the digital audit trail" which involves passing by motion sensors, logging in workstations or taking a seat at certain chairs.

"As we move toward a full technology integration into the K-12 educational experience, we have to ensure that our facilities match the myriad technologies we provide to students. Why not start from the moment they walk into the building?" ■

**BERNHARD MEHL** is co-founder of KISI, a smartphone access control system for businesses. He can be reached at [bm@getkisi.com](mailto:bm@getkisi.com).



KISI's bluetooth and NFC reader installed at the door.

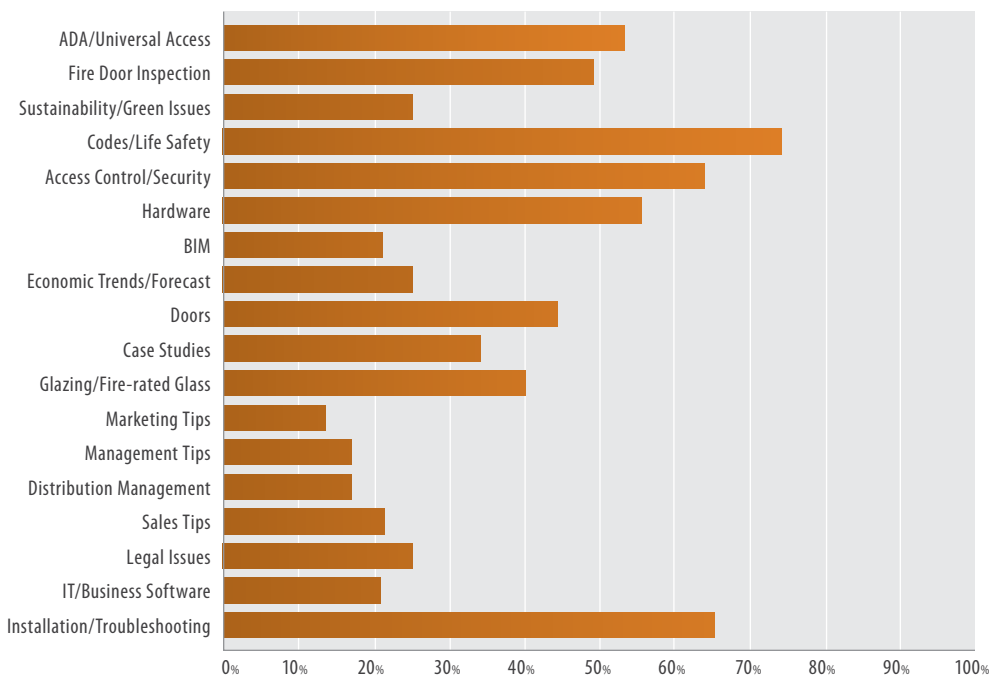
# 2016 Doors + Hardware *Reader Survey*: THE RESULTS ARE IN!

By Denise Gable

*Doors + Hardware* readers are generally happy with the content and appearance of the monthly magazine, but would like to see more articles on industry topics such as codes and life safety, access control and security, and installation and troubleshooting, according to the results of the 2016 Reader Survey.

Overwhelmingly, 91 percent of survey respondents rated the content of *Doors + Hardware* as “excellent” or “good,” and 87 percent called it a “must read” for someone in the industry. Ninety-three percent felt the level of information is appropriately sophisticated and timely.

## What Industry Topics Would You Like to See More of?



## Did You Know?

With the launch of the new DHI.ORG, *Doors + Hardware* is no longer offered in a digital flipbook. However, we now offer PDFs of complete issues from 2009 through 2016, as well as a complete library of more than 1,000 individual articles by topic from those same dates.

We think you'll find this collection invaluable for research, education and networking. As always, if you have any comments or questions about *Doors + Hardware*, email Managing Editor Denise Gable, [dgable@dhi.org](mailto:dgable@dhi.org).

## Facts about *Doors + Hardware*

**Almost one-half of our readers spend 30 minutes or more** reading their copy of the magazine each month.

**More than 70%** of you save articles for future reference.

**Almost one-half of readers share their copy** of the magazine with colleagues.

**Most popular columns?**  
*Decoded* by Lori Greene, DAHC/CDC, FDAI, FDHI, CCPR, and *Real Openings*, by Mark Berger

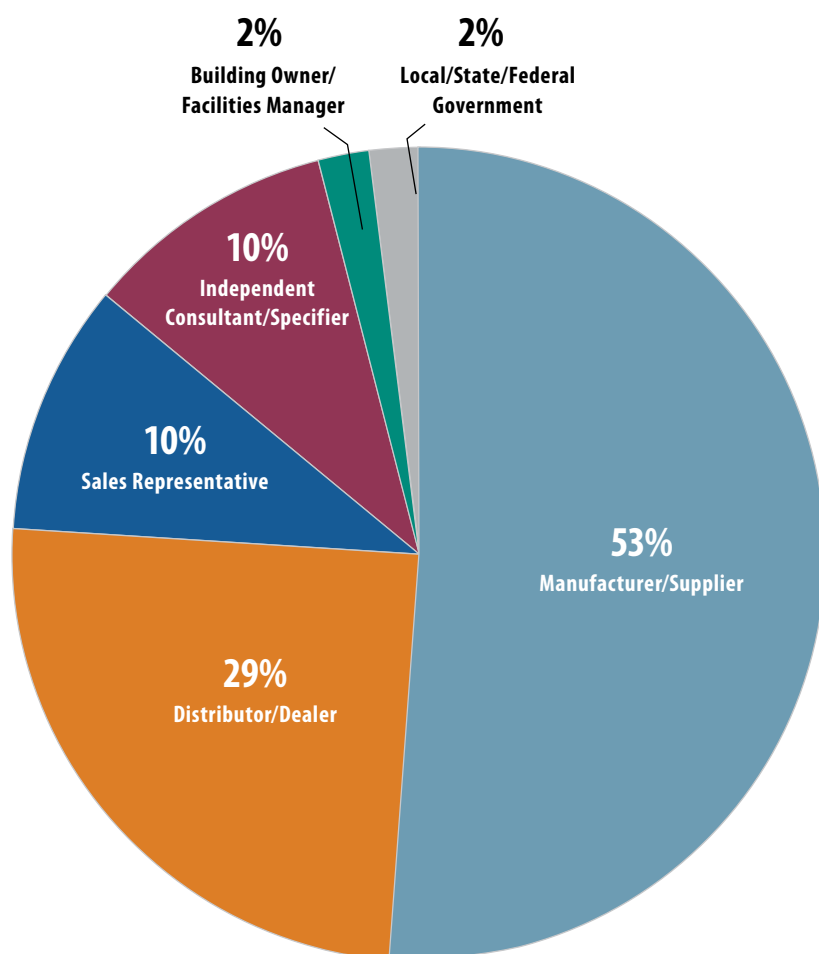
## Most Popular Topics

Seventy-six percent of readers said they wanted more coverage of codes and life safety issues, while 63 percent asked for more on access control/security, 66 percent want installation/troubleshooting and “how-to” articles, and 56 percent want more articles on hardware.

Other popular topics include ADA/universal access, fire door inspections, doors and glazing/fire-rated glass.



## Doors + Hardware Readership



## WANTED: SUBJECT MATTER EXPERTS

We appreciate everyone who took the time to respond to the survey and we will consider all of your suggestions as we work to keep *Doors + Hardware* relevant to our members while strengthening the content and appearance.

Your expertise and willingness to share with your industry peers and colleagues is critical to our success. Contributing an article to an industry publication like *Doors + Hardware* is an excellent way to gain recognition, and establishing yourself as a subject matter expert to your employer increases your career standing and value.

To date, more than 50 talented authors have contributed articles to *Doors + Hardware* in 2016. If you are one of those authors and would like to contribute again, email me at [dgable@dhi.org](mailto:dgable@dhi.org), or call me at 703.766.7018. If you're a first time author/contributor, feel free to go to [www.dhi.org](http://www.dhi.org), look under Business and Technical Resources to review the 2016 editorial calendar to see where your article might best fit in, or call me to share your ideas. Chances are we can find a spot for you!

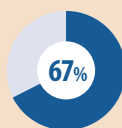
## Why Do You Read *Doors + Hardware*?



To learn more about new products, business practices, codes and standards



To better understand issues and trends impacting our industry



To educate myself and my employees



To find out the latest news in our industry



To stay current on DHI events and programs

# Door Security & Safety Foundation Says **THANK YOU** to The Cook & Boardman Group

**THE COOK & BOARDMAN GROUP** continues to be an active supporter of the Door Security & Safety Foundation (DSSF) since our initial involvement in 2009. We are proud to support the Foundation's mission to promote safe and secure openings that enhance life safety through awareness and education to the building design, code authority, and facility management communities.



**Chuck Hummel, CEO of The Cook & Boardman Group**, served eight years as a trustee on the DSSF Board, and before that served six years on DHI's Board of Governors. Our company views supporting the Door Security & Safety Foundation as a responsibility we have to the industry in which we participate, and to our 20 full-service total opening unit locations and our 600-plus employees. At the end of the day, it's about delivering life safety and security. That is something of which we can all be proud.

The Cook & Boardman Group began as a single Charlotte, N.C., company in 1955, and has grown to our

footprint today of 20 locations in nine states and six geographic regions of the country. We serve all sectors of the non-residential construction market, with our growth occurring through local market expansion in the markets we serve, and acquisition expansion into new markets not served prior by us.

We believe in supporting the local market trade names of companies that have become part of our team. Each of these companies has a deep history with the markets they serve, and we work hard to provide them with added tools once they become part of our company.

The Door Security & Safety Foundation is what we as a company believe in and support, and what every distributor in our industry should believe in and support. The Foundation's mission is to promote secure and safe openings that enhance life safety through awareness and education to the building design, code authority, and facility management communities. As distributors, that is our responsibility, to be part of making the built environment safe and secure.

We within the Cook & Boardman Group are proud that The Door Security & Safety Foundation took a

public position on classroom security and provides education and resources to promote the position that maintaining a balance of life safety and security is possible using proven products that meet NFPA 101 – the *Life Safety Code*.

We are proud that it took the needed actions to bring on an industry professional in Paul Baillargeon, AHC, FDAI, as their Vice President, Technical Consulting. Paul has made great strides in promoting the Foundation's efforts in providing awareness and education on NFPA 80's revised care and maintenance standards, as well as the required annual inspections of fire door assemblies. There are more than 6,300 hospitals in the U.S. that can be potential sites for us as distributors to be involved in presenting this awareness and education program that is specifically designed for the health-care community.

Developing and adding more end user-aftermarket sales resources is a key initiative of ours. How many dollars are spent in the aftermarket is difficult to estimate, but with a consistent demand generation effort, the results are worth the time and energy invested.

DSSF's efforts with respect to the annual fire/egress door inspection initiative is powerful. Their efforts to create awareness of this important update to the NFPA 80 and 101 standards, and their inclusion in the International Building Code and International Fire Code, will present meaningful revenue opportunities for those focused on the end user environment.

We are excited about the opportunities before us. Growth through acquisitions is important to us as a company. We believe strongly that certain investments needed to stay current and relevant will be hard to do for companies of a certain size, and the best path forward to keep those companies

positioned to grow and survive will be finding a larger company they can be part of that share their values and objectives.

Our service culture is driven by sales professionals with market-leading product and application knowledge who partner with our in-house technical experts (LEEDSs, electronic security and access control and other required disciplines). In an industry where engineering details and various code requirements can become quite complex, our competent professionals are critical to providing industry expertise, exceptional customer service, and focus.

At The Cook & Boardman Group, we believe in:

- integrity
- mutual respect, trust and empathy
- excellence through continuous improvement and lifetime learning
- individual professional fulfillment through superior teamwork
- shared focus on profitable growth

The Cook & Boardman Group is dedicated to providing a consistently superior, total value experience on each job, for each customer, every day. *We are Building on Our Reputation.*

## 📍 LOCATIONS

### CAROLINAS REGION

**Cook & Boardman:** Charlotte and Winston-Salem, NC, Columbia, Greenville, Charleston, SC

**Martin Architectural Products:** Raleigh, NC

### MID-ATLANTIC REGION

**Precision Doors & Hardware:** Alexandria, Leesburg, Fredericksburg, and Lynchburg, VA, and Rockville, Frederick, and Baltimore, MD

**Cook & Boardman:** Newport News, VA

### FLORIDA REGION

**Hollow Metal Specialists:** Sarasota, FL

### WEST REGION

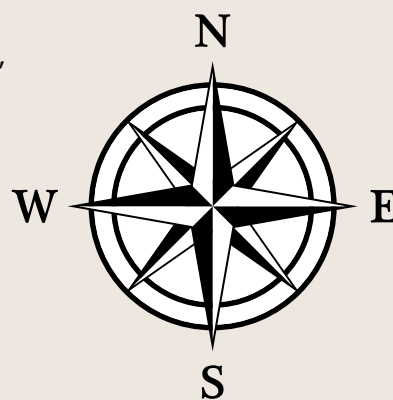
**Architectural Building Supply:** Salt Lake City, UT, and Idaho Falls, ID

### NORTHEAST REGION

**Hardware Consultants and Precision Millwork:** Portland and Bangor, ME

### SOUTH CENTRAL REGION

**RDL Supply;** Dallas, TX





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Hallgren, Mark S., AHC, FDHI  
Heppes, Gerald S., Sr., CAE  
Maas, Bob  
Petersen, Tim, LEED AP

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### INDIVIDUAL (\$250)

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Hildebrand, Stephen R., FDHI

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Boardman, Raymond K., AHC  
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Clancy, Michael B.  
Cusick, William R.  
Cusick-Rindone, Kendall L., CSI, CCPR  
De La Fontaine, Richard, AHC/CDC, FDI  
Dial, Randy S.  
Emmerich, Mark A.  
Hansen, Steven G., AHC  
Heineken, Leslie H., AHC  
Hilkert, Al  
Hornyak, Stephen T., DAHC, FDI, FDHI, CDT  
Kalar, Robert, AHC  
Langtry, Alfred L., AHC  
Lecours, Roger, AHC/CDC  
Li, JinLing  
Lineberger, Mark E., AHC/EHC, FDI, FDHI  
Martin, Michael H.  
Molina, Chuck J.  
Mullins, Charles W., DAHC  
Pekoc, Thomas A., AHC, CDT, CSI  
Poe, Gregory S., AHC  
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Sargent, David C., AHC  
Seigfreid, Jean  
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Spargo, John F.  
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**Jason Landon, EHC**  
CONSULTANT, PROABLE HARDWARE SPECIALTIES,  
NUMBER OF YEARS AT CURRENT COMPANY: 11  
NUMBER OF YEARS IN THE INDUSTRY: 11



**Richard T. Royer, AHC, EHC**  
ACCESS CONTROL SPECIALIST/BRANCH MANAGER,  
CLEVELAND VICON  
NUMBER OF YEARS AT CURRENT COMPANY: 21  
NUMBER OF YEARS IN THE INDUSTRY: 30  
*A big "thank you" to all of the volunteer instructors on the EHC track.*



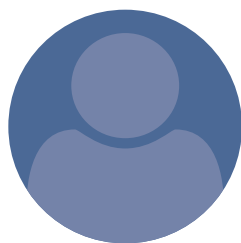
**Justin Nelson, AHC**  
BRANCH MANAGER, ARCHITECTURAL DIVISION 8  
NUMBER OF YEAR AT CURRENT COMPANY: 9  
NUMBER OF YEARS IN THE INDUSTRY: 9  
*I would like to thank my Lord and savior Jesus Christ, for his strength and guidance. I also want to thank my wife Kelly, and Mom and Dad for their continued support through the process.*



**Tariq Shafakat Santrampurwala, AHC**  
NUMBER OF YEAR IN THE INDUSTRY: 10  
MENTORS: Shafaqat Santrampurwala and Kashmira Santrampurwala  
*Success is a journey, not a destination.*



**Angela M. Plum, CDC**  
DETAILER, BUNTING DOOR AND HARDWARE  
NUMBER OF YEAR AT CURRENT COMPANY: 13  
NUMBER OF YEARS IN THE INDUSTRY: 13  
MENTORS: Chad Epler, AHC; special thanks to Jim Fellows, AHC



**NOT PICTURED**  
**Kevin Letto, AHC**  
LA FORCE

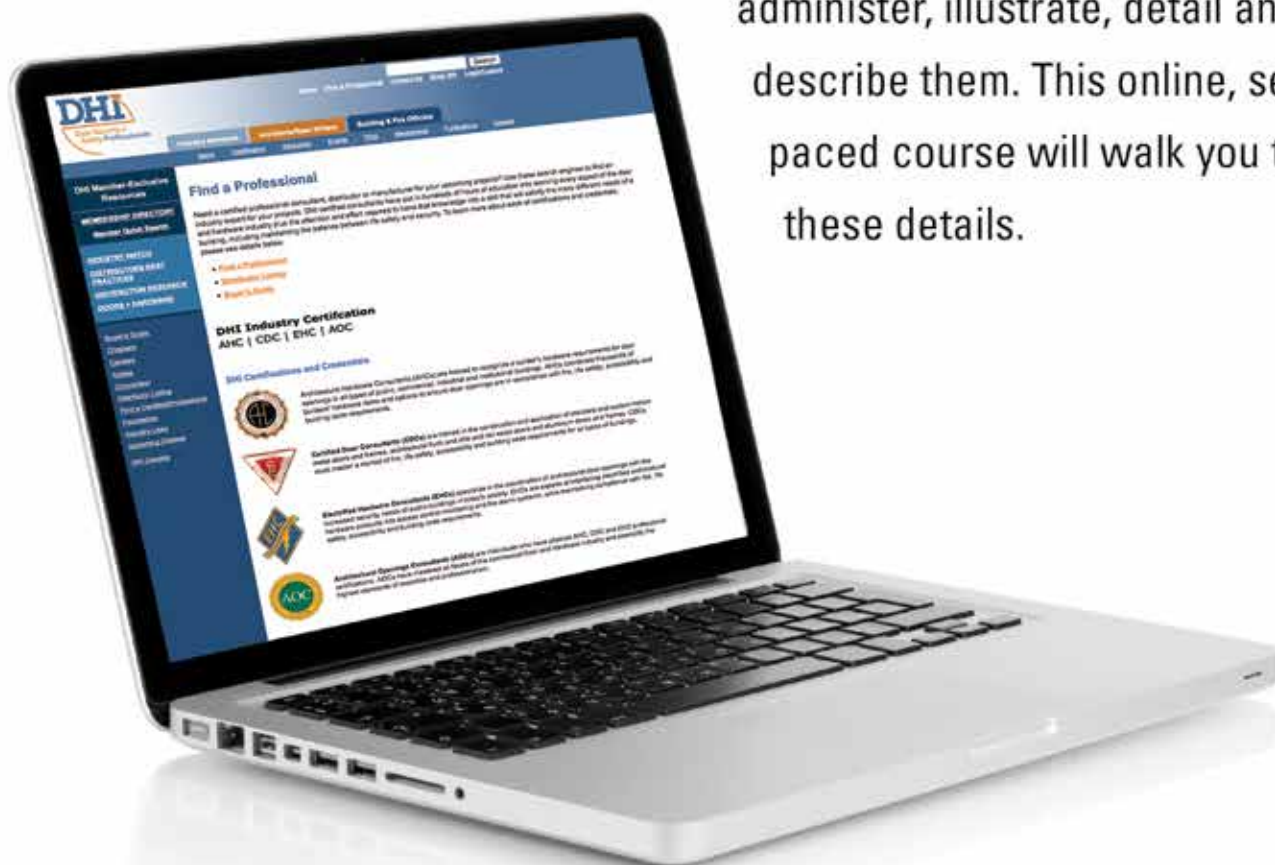


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## MEMBER SPOTLIGHT

# Lori Greene

*DAHC/CDC, CCPR, FDAI, FDHI*



**What started as merely a job has transformed into a true passion—**and supported and influenced an entire industry.

Outside of those who grow up working in a family hardware business, most members of this industry began their careers unintentionally. What starts out as merely a job somehow transforms over time into a career and, for some, a true passion—a calling, if you will.

For Lori Greene, DAHC/CDC, CCPR, FDAI, FDHI, the road that led to this industry began on her graduation day at Vermont Technical College. She was standing in line to receive her associate's degree in architecture and building technology, and one of her professors was handing out business cards for an aluminum storefront company that was looking to hire a draftsman. Having already determined that she couldn't continue her college education at that time, she took the card and got the job.

Eighteen months later, she began working for HCI/Craftsmen in Winooski, Vt., as a detailer, and it was here that she began learning all about doors and hardware.

With the support of several tremendous teachers and mentors, she was able to overcome both the enormity of the learning curve and the prejudices she faced as a 20-year-old woman working in a field that was dominated by men.

During this time, she also became a member of DHI's New England Chapter and started attending local chapter meetings and national DHI schools. This was only the beginning of her involvement with the local chapter that would one day appoint her to serve as the New England Chapter secretary and later, chapter president.

After five years at HCI, she moved to the Boston area where she worked for a manufacturer's rep agency—Openings Systems Group, and a small distributor—Hennigar Door. In 1994 she was offered a job with MPS Sales working as a rep for LCN, Von

Duprin, NGP, and several other door and hardware manufacturers. By this time, she had received both her CDC and AHC certifications and, as one of only five employees, she was tasked with doing everything from phone support to changing door closers in the field.

Her job began to transform into a career as she started learning about codes, writing specs and ultimately managing the specification department. Over the next 22 years, as the employees of MPS Sales became part of Ingersoll Rand Security Technologies and the company later spun off the security businesses into a new company—Allegion—she discovered a real passion for the vital role this industry plays in providing life safety and security within the built environment.

Driven by a constant desire to learn more, she has earned an impressive list of credentials. From DHI, she has received a Fellow Award (FDHI), Fire and Egress Door Assembly Inspection (FDAI) and Distinguished Architectural Hardware Consultant (DAHC) as well as two certifications from CSI as a Construction Documents Technologist (CDT) and Certified Construction Product Representative (CCPR). She is also a member of the ICC and NFPA and is a Certified Fire Plans Examiner (CFPE).

Serving on many committees throughout her career, she is currently a member of the BHMA Codes & Government Affairs Committee, a group that helps to change the model codes and standards in the United States, and she is also DHI's alternate member of the NFPA Technical Committee on Fire Doors and Windows.

Her deeply-held belief in the importance of adhering to building codes

and writing proper specifications eventually led her to begin sharing her knowledge of these issues with others. She's taught a number of courses over the years, including the engaging *Code Jeopardy* and *Decoded: 1 vs. 100*, and has converted her popular four-class *Decoded* series to on-demand classes available online.

She has also written several award-winning articles for both this publication and *Construction Specifier*. Most are likely familiar with her *Decoded* column that runs in each month's issue of *Doors + Hardware*. It is the original source of these columns that is arguably Lori's greatest contribution to the industry—her much-loved blog **iDigHardware.com**.

Although initially unsure what sort of following the site would generate, Allegion supported her experiment to reach industry members in a new way, and she began posting the answers to common questions about door openings. The site quickly surpassed all expectations and became an indispensable resource for distributors, code officials, security integrators, architects, locksmiths and end users around the world, a fact made evident by her site traffic. In just seven years, the site has received more than 1 million visits, 2 million page views, 500,000 visitors, 1,500 posts, and 10,000 comments.

For Lori, the blog is an effective way to address directly the countless code and hardware-related questions she has been asked over the years. For her readers, it's one of the few sites available where they can receive detailed explanations of complicated or frequently misunderstood door, hardware and code issues. She also offers on-demand training through the website as well as a downloadable code reference guide and many

educational videos. With so much information compiled in one location, readers are almost certain to find the answer to whatever their question may be, but if not, they are encouraged to email her directly.

Somehow, in the midst of working as the Manager of Codes and Resources for Allegion, serving on several



committees, writing articles and daily blog posts, and teaching courses, Lori also finds time to spend with her family. She currently works remotely and lives in San Miguel de Allende, Mexico, with her husband and three kids, all of whom have come to accept that no family vacation will be complete without her photographing unusual doors and hardware or code violations for future blog posts and articles.

Over the course of three decades, Lori has made enormous contributions to this industry. Her willingness to share her extensive knowledge of codes and hardware has taken many forms, but the result is that she has influenced countless people around the world, at every stage of construction, from architects and specifiers, to installers and code officials. And so it is that, on behalf of an incredibly grateful industry, we say thank you for the innumerable hours she has devoted to improving life safety and security around the globe. ■





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# 2016–17 Education Schedule

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COURSE CURRICULUM					
MON 10/24	TUES 10/25	WED 10/26	THURS 10/27	FRI 10/28	SAT 10/29
COR120 Door & Frame Applns		COR113 Architectural Hardware & Applications			COR103 Understanding & Using Constr Doc
COR140 Using Codes & Standards			COR147 Introduction to Specification Writing		
COR133 Elect Arch Hdw					AHC200 Masterkeying
AHC205 Detailing Hardware			AHC220 AHC Exam Prep		
AHC215 Writing Hdw Specs					
COR125 Takeoff and Estimating		COR160 Mat Purch Concepts	COR153 Installation Coord & Proj Mgmt		
CDC300 Using Dr & Fr Stds	CDC305 Detailing Doors & Frames		CDC310 Writing Door & Frame Specifications		
EHC400 Electrified Hardware Applications & Documentation			EHC405 Access Control & Electrified Hdw Systems		
EHC410 EAC & EH Installation & Troubleshooting			EHC420 EHC Exam Prep		

Classes/schedule are subject to change.

\*AHC215 will be face-to-face on 10/24–10/28

This course will be held again in the Spring of 2017 and may be a Hybrid online course at that time.

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Foster Smith, Charles "Chuck" Smith, and Lewie Smith, with Charles F. Smith Sr. in the background.

Photo courtesy of the Smith family

## Letting Go: Handing over a Family Business to My Sons

By Chuck Smith

**It seems like most everyone I know** who is about my age has a "can you top this?" retirement story, so here's mine, and I swear it's true.

I have a friend, let's call him Ed, because that is his real name, and he is indeed retired. When I asked him one day, "What is your plan?" he replied, seriously, "I'm going to my duck camp over in Arkansas, which is a 90-mile drive, and check the expiration date on the mayo in the fridge."

Food for thought, you could say, as I contemplate turning over the reins of National Guard Products to my two highly capable sons, Foster, 36, and Lewie, 34. At 67, I'm in good health, my mind is as sharp as it ever was,

and I'm still eager to come to work. I'm 10 years younger than my dad, Charles Foster Smith Sr., was when he died in 1983; 48 years after he founded our company here in Memphis.

Dad literally worked until the day he died, and I took over the corner office, ready or not, without the benefits and anxiety of a succession plan or any of those highly compensated transition planning consultants you read about. It was the sink-or-swim executive training program.

Now I'm one of those aging Baby Boomers with Generation-Whatever nipping at our heels. Rationally, I know there is much more runway behind me than in front of me. But

emotionally, I'm struggling with letting go of something I have nurtured for more than 40 years.

It's sort of like putting down a really good book or walking out of a great sporting event just when the action is getting good. Or that moment when you're in flooded timber in the duck woods just when the mallards are starting to filter in. The action is picking up, the plans have been made, and the next big thing will be ... well, who knows? But can I stay just a little longer?

A little history is in order. Our company was first known as Memphis Window Guard Company and specialized in those iron burglar bars

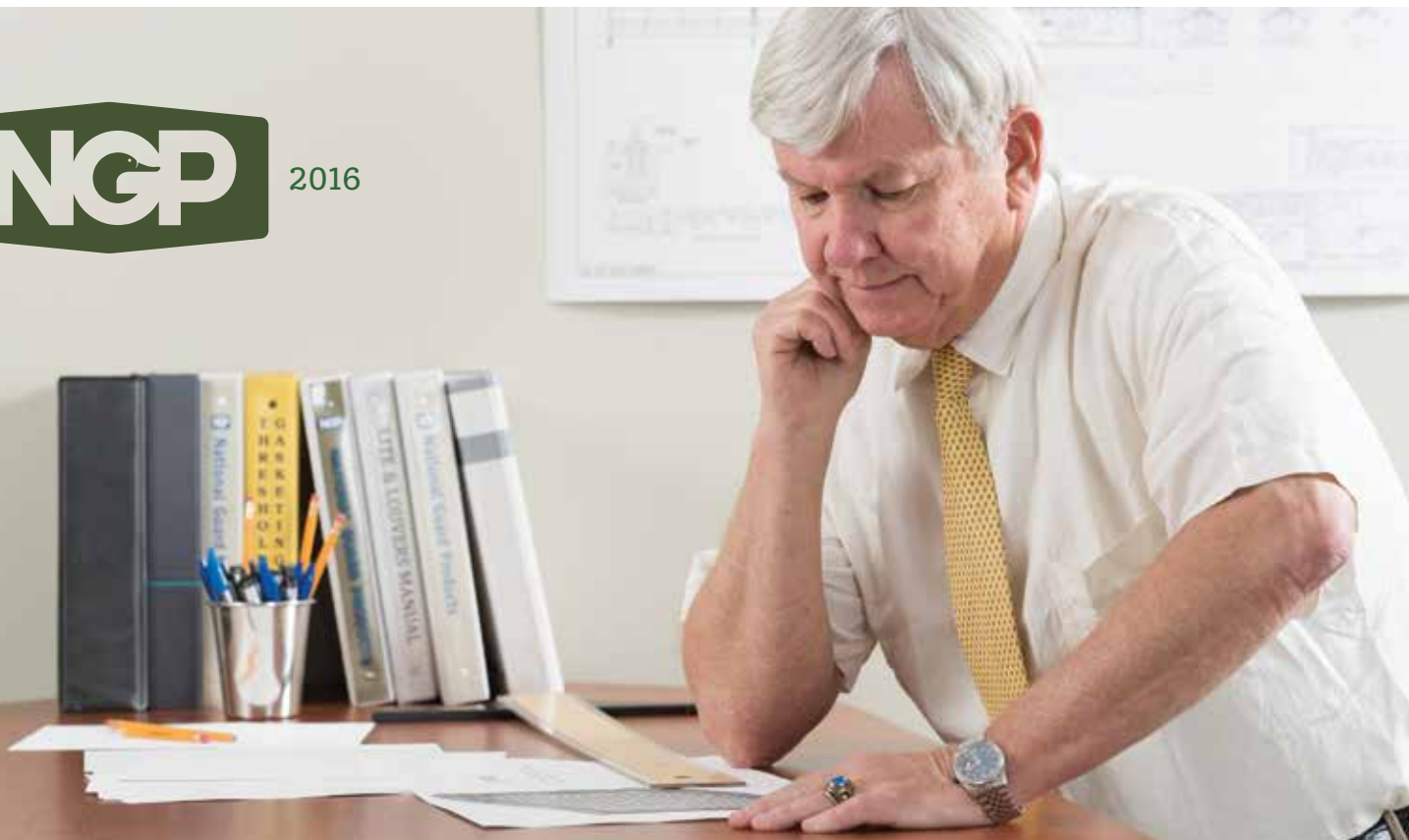




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you still see on old homes here. By the 1960s, the company had a more diversified product line, including weather stripping and bronze, exterior thresholds and was pivoting from the residential market to commercial construction.

In 1996 we left downtown Memphis for a new 100,000-foot factory in East Memphis in the heart of what was then a booming manufacturing and distribution center, served by our hometown company FedEx. Today you'll see some "big empties" in our neighborhood, but NGP has hung tough. In fact, we doubled down, almost, with a 60,000-foot expansion in 2005 to boost our ability to manufacture door vision kits and door louvers.

When I read stories about the death of American manufacturing or the difficulty of finding good workers in Memphis, a city that has taken more than its share of lumps, I smile and shake my head. We're running 10-hour shifts every week during our busiest months, and we have more than 200 excellent employees. And probably more of them are from the inner city than the suburbs, thanks in part to a ministry called Advance Memphis that works with men and women in the third poorest zip code in the country, 38126.

Both of my sons have MBAs from great schools. One of them, Foster, is our president—only the third president in our 80-year history. The other one, Lewie, is our CEO. I have no doubt they can handle whatever comes their way. So often I hear them say, "Yeah, we can make it work, let's get after it!"

The business we are in is dominated by a pair of global giants, fully capable of buying out or crushing competitors. I sometimes call them two gorillas slugging it out. To compete and grow, my sons need to build their own team, just as their father and grandfather did. When I got in the business in 1972, most of the manufacturers were independent family businesses like NGP. Now we

are one of only a handful that has made the decision to remain family-owned.

How might our corporate culture change in the next 40 years? For me, that is maybe the hardest part. Southerners, as you may have heard, take tradition seriously. Customer duck hunts have been one way we differentiate ourselves for 25 years. Want to talk to the president? Then tell Becky, who answers the phone, to please get Foster. No recording is going to ask you to spell the last name of the party you wish to speak to. We'll always stress personal service.

What's changing in our industry are the technology, websites, lead times to distributors, building codes, fire codes, ADA requirements, and how many LEED credits a project or building can receive. We have to stay on top of that and deliver what FedEx calls a "wow experience."

So where will I be, and what will I be doing a year from now? I certainly will retain my "Chairman" duties, including goal-setting and performance review as I've always done. And attend those stinking Board meetings since I am still Chairman. But also perhaps dip my toe into the not-for-profit world.

For example, transferring my experience to mentoring promising young men and women, with a nod to Bob Buford's book *Half Time: Changing Your Game Plan from Success to Significance*. Probably playing more tennis and golf, even though seeing men and women my age sitting around the club lounge enjoying a too-long lunch sends a little chill down my back.

And surely I'll be spending more time at that duck camp, knowing as I do that everything in the kitchen is certifiably fresh. But duck season is only 60 days long. It's the other 305 days I'm worried about. ■

**CHUCK SMITH** can be reached at [chucks@ngpinc.com](mailto:chucks@ngpinc.com).

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# NINE KEY CONSIDERATIONS FOR SUCCESSFUL SUCCESSION PLANNING

By Kevin Kennedy

*Succession is a critical component of a successful business exit. The process involves replacing the owner by moving chosen performers to a championship team, and eventually into leadership. This requires time, training and a strategic succession plan.*

A successful succession plan outlines how to educate and build bench strength, groom emerging managers, develop leadership training, and identify future owners. The flexible plan may take several months to write and several years to execute. Depending on the readiness of a company's management and the type of exit and current payout, a succession plan may last from three to 10 years.

On the other hand, if the business is systematized and has clean financials with mature management in place, then the company could be "sale ready" in less than a year. This article presents nine key considerations of succession planning.

## 1. Complete the Exit Plan

The succession process does not begin until the owner can begin to see him or herself outside the business and visualize a clear financial future outside

of the business. This requires an exit plan. A large part of the exit plan is income replacement for the owner, tax reduction and legal risk reduction. (For more detailed information about the exit planning process, refer to A Successful Exit and Eight Disciplines of a Successful Exit.)

## 2. Know the Odds

Seventy percent of companies fail to transfer into the second generation, and 90 percent of companies fail to transfer into the third generation, according to the Family Firm Institute. What is the main cause of failure? A lack of planning. "At any given time, 40 percent of U.S. businesses are facing the transfer of ownership issue. The primary cause for failure ... is the lack of planning," according to the Small Business Administration. An owner should not take this lightly. If you fail to plan, you plan to fail.

## 3. Establish a Clear Direction and Focus

The beginning of the succession process is a time for the senior management team to revisit the strategic plan, vision and mission. This process will be an exercise for the management team members to establish their roles, work as a team and establish a stake in the company's future.

It will be the management team's responsibility to take the reins and engage the company in this plan, and to communicate and ensure the plan's implementation. The direction begins at the top, and this exercise will help the team to begin seeing their future.

## 4. Consider EQ When Choosing Future Leaders

Emotional Quotient, or EQ, has emerged as a way to measure non-cognitive skills. Some researchers argue



that EQ is more important than IQ in the workplace, and studies have found that EQ is a key ingredient for leaders. Psychologist Daniel Goleman, who authored the book “Emotional Intelligence,” states that emotional intelligence is reflected in behavior, from self-awareness, to how one uses gut feeling, self-control of emotions, empathy, and the ability to inspire and influence others. An owner should consider EQ when choosing future leaders for their company.

### 5. Develop Management Succession

Management succession is more than the replacement of talent; it is the development of talent. This is a time for the new team to reexamine and improve performance of the company’s systems in a process of continuous improvement for the company’s productivity and profitability. The new management team should lead this process and educational effort for the entire company. It is a time for the owner to coach and stretch managers into champions, and to help them to start thinking like owners.

### 6. Train Future Leaders

Once a new management team is chosen, the owner must help them grow into leaders. Strong managers lead the company to meet deadlines and corporate goals. Those managers must now rise to a higher level of leadership to set a corporate direction and build consensus. An owner will need to work with those managers

to change their behavior and build self-awareness, while still maintaining their spirit. Methods such as peer evaluation and personal coaching may prove helpful as managers move into the next level of leadership.

### 7. Start Training Early

Succession and behavioral change take time, and the sooner training begins, the better the results will be. There are three parts to this training: education, coaching and stretching. An owner will spend about 30 percent of their time with the first two—education and coaching. The key is to leave 70 percent of their time for the stretching process. This is where managers are field-tested, and asked to apply their learning, make mistakes, adapt and mature. This is the most important aspect of the training process.

### 8. Coach the New CEO

Every CEO must realize that their role with the new successor is to make sure he or she is prepared to lead the company. The owner and successor should collaboratively decide the process, timeline and curriculum.

Remember, this process is all about the new CEO, not the exiting owner. The exiting owner’s role is to teach, coach and ensure the company’s future success. The new CEO’s management and leadership style likely will differ in many ways from that of the existing owner. An exiting owner should let the new CEO find his or her own path unless they see a disaster in the making.

### 9. Prepare To Be a Lame Duck

While the succession process will be different for every CEO, one factor will remain the same in almost all cases—the exiting owner will feel like a lame duck. Eventually, the exiting owner’s phone will stop ringing, managers will bypass the exiting owner and move directly to the new CEO, and the exiting owner will be out of the loop. When this happens, the good news is that the process is working as it was designed to do, and the exiting owner has succeeded where most CEOs fail.

However, this process is often more emotional than an owner expects, and he or she must work to focus on life outside of the business. As I tell owners who are finalizing their exit, “Congratulations, and welcome to the Lame Duck Club.” ■

KEVIN KENNEDY is the founder of Beacon ExitPlanning LLC (America’s Exit Planner) and Beacon Merger & Acquisitions Advisors LLC, and is a nationally recognized speaker, author and thought leader for business owners for exit planning and succession. Kennedy walked the exit path and understands firsthand the challenges an owner faces from buying and selling a 200-employee company and implementing succession planning to the fourth-generation owners. Beacon brings owner-centric advice to business owners. He can be reached at [KJKennedy@BeaconExit-Planning.com](mailto:KJKennedy@BeaconExit-Planning.com).

*This article was originally published in the July 2016 issue of Glass Magazine, the official publication of the National Glass Association. It is reprinted with permission from the NGA. For more information, visit [glassmagazine.com](http://glassmagazine.com) and [glass.org](http://glass.org).*

## NFPA 80 Requirements for Hinges


By Lori Greene, DAHC/CDC, FDAI,  
FDHI, CCPR

**With the continued focus on fire door assemblies,** it's important to be familiar with the basic requirements as well as what has changed in the more recent codes and standards. This article focuses on hinge requirements for fire doors, as mandated by NFPA 80 – *Standard for Fire Doors and Other Opening Protectives*.

Each edition of NFPA 80 refers to several ANSI/BHMA standards for hinges, including A156.1 (*Butts & Hinges*), A156.4 (*Door Controls* – contains pivot requirements), A156.17 (*Self-Closing Hinges and Pivots*), and A156.26 (*Continuous Hinges*). These standards contain detailed requirements about hinges, spring hinges, pivots, and continuous hinges. The edition of a referenced standard may vary from one edition of NFPA 80 to the next, so refer to the applicable edition of NFPA 80 to verify the effective date of the referenced standard.

Standard hinges are not typically required to bear a label indicating that they are listed for use on a fire door, but they must comply with the applicable referenced standard. Spring hinges must be labeled, as well as meeting the Grade 1 standards of A156.17. All hanging devices—hinges, spring hinges, continuous hinges and pivots—must be provided as specified in the door and hardware manufacturer's published listings or in accordance with NFPA 80. Various types of hinges are referenced in Annex A of NFPA 80, including 5-, 3-, and 2-knuckle hinges, full-mortise, half-mortise, full-surface, and half-surface hinges, and spring hinges, wide-throw, raised-barrel, and swing-clear designs.

A table within NFPA 80 includes a lot of important information about hinges for fire door assemblies. In recent editions of the

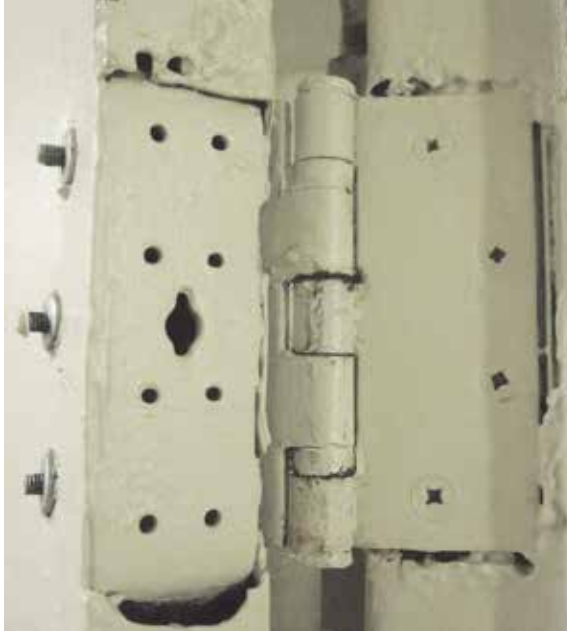


Hinges on fire doors may be shimmed, but steel shims must be used. Shims of cardboard, wood, plastic, or other materials do not meet the requirements of NFPA 80.





**Using foam insulation to fill an existing hinge prep on a fire door assembly is not a method that is allowed by the manufacturers' listings.**



**When hinge reinforcements become damaged, creative modifications like this one can result in a non-code-compliant fire door assembly.**

standard, it is Table 6.4.3.1 – *Builders Hardware: Hinges, Spring Hinges, and Pivots*. The table specifies the minimum hinge size, type, and thickness, based on the door rating, width, and height. This table should be consulted to determine the correct hinge for each fire door assembly. For example, a steel hinge, mortise or surface-mounted, on a fire door that is 3 feet wide and 7 feet high must be at least 4 1/2 inches high and 0.134 inches thick. The maximum door size shown on this table for spring hinges is 3 feet wide and 7 feet high, so spring hinges installed on larger fire doors must be listed by the manufacturer for the appropriate door size.

Spring hinges are defined by NFPA 80 as, “A closing device in the form of a hinge with a built-in spring used to hang and close the door.” When spring hinges are installed on a fire door, NFPA 80 requires at least two spring hinges to be used, but does not specify which hinge locations the spring hinges must be installed in (top, center, or bottom hinge positions). Annex A suggests that spring hinges should be adjusted so that the door will latch properly when allowed to close freely from an open position of 30 degrees. This may be difficult to achieve long-term, and door closers are often used on fire doors because they provide greater control of the door and more reliable operation.

Fire door assemblies are required to have an adequate quantity of hinges as specified in the standard. A door up to 60 inches in height must have two hinges. Doors over 60 inches tall are required to have one additional hinge for each additional 30 inches of door height (or

fraction thereof). For example, a 90-inch door would have three hinges, and a 100-inch door would have four. Annex F – *Door Hardware Locations*, includes diagrams showing hinge locations for different types of swinging fire doors, but it’s acceptable for a manufacturer’s listings to allow hinges in alternate locations. NFPA 80 states that the distance between hinges may be greater than 30 inches.

NFPA 80 requires all hinges and pivots to be ball-bearing type, except for spring hinges, but other antifriction bearing surfaces are allowed if they meet the requirements of ANSI/BHMA A156.1 – *Standard for Butts and Hinges*. For hinges that are not of the ball bearing type, or are of lighter weight than what is allowed by Table 6.4.3.1, the hinges may be used if they are part of a listed assembly, and meet the test requirements of A156.1, and they have been tested to a minimum of 350,000 cycles. Pivot sets which are smaller or lighter weight than the minimums shown in Table 6.4.3.1 must meet the requirements of A156.4 – the standard for door controls (which also includes pivot requirements), and must be in accordance with the manufacturer’s label service procedures.

New requirements for pivots were added to NFPA 80 in the 2013 edition. The standard now mandates the quantity of pivots required for fire doors—a pivot set consisting of a top and bottom pivot and one intermediate pivot for doors up to 90 inches in height. For door heights greater than 90 inches, an additional intermediate pivot is required for each additional 30 inches of door height, or fraction thereof.

**Incorrect or missing fasteners can impact the performance of a fire door—both functionally on a day-to-day basis, and during a fire.**



NFPA 80 also allows the use of only intermediate pivots rather than a top and bottom pivot set. In some cases, this application is preferred for aesthetic reasons or because of the design of the frame. If only intermediate pivots are used, the quantities are the same as the requirements for hinges—two intermediate pivots for doors up to 60 inches in height, and an additional intermediate pivot for each additional 30 inches of door height or fraction thereof.

Requirements for continuous hinges were also added to NFPA 80 in the 2013 edition. Continuous hinges must be labeled and are required to comply with ANSI/BHMA A156.26, the standard for continuous hinges. The standard states that the length of continuous hinges must be within 1 inch of the height of the door leaves. Continuous hinges manufactured from steel, stainless steel, and aluminum are available for use on fire door assemblies, but only labeled continuous hinges may be used.

When a continuous hinge is installed on a fire door assembly, labels that would be covered on the door and/or frame should be attached in an alternate location so they are visible for the life of the assembly. If a door or frame was prepped for standard hinges, and a continuous hinge is installed, the existing hinge preps need to be addressed in a manner that is acceptable per the manufacturer's published listings.

One of the common problems regarding hinges on fire doors is related to the failure of the fastening method. Hinges are required to be secured as described in the manufacturer's installation instructions and published listings.

The standard specifies the type of fasteners that must be used—steel machine screws to secure mortise hinges to reinforcements in a door, and steel wood screws (No. 12 x 1 1/4 inch flat, threaded-to-the-head) for mortise hinges attached to wood and composite doors. Pilot holes must be drilled for these fasteners (5/32-inch in diameter). Steel through-bolts are required for surface-mounted hinges. For attachment to the frame, hinges must be secured with steel screws, but the type of screw will vary depending on the frame material.

In some cases, hinges must be shimmed during or after installation to properly align the door in the frame and bring clearances into compliance with NFPA 80. Shimming is allowed, but steel shims must be used. If correct clearances cannot be achieved by shimming the hinges, the NFPA 80 Handbook suggests adjusting compression anchors and/or repositioning sill anchors on slip-on drywall frames, or removing and reinstalling the frame. It's much less disruptive to shim the hinges if possible, but shims of cardboard, wood, or other materials are not allowed for use on a fire door assembly.

The hanging components—hinges, pivots and continuous hinges—are just one part of a fire door assembly, but they play an important role. If the hinges are specified, supplied, or installed incorrectly, the door will not swing freely. Incorrect fasteners may cause the door to sag or even come loose from the frame. Clearances can be affected by this misalignment, and the door may not close and latch properly, impacting the ability of the assembly to deter the spread of smoke and flames during a fire.

The inspection requirements of NFPA 80 include verification that all components of a fire door assembly, including the hinges, "*are secured, aligned, and in working order with no visible signs of damage;*" Annex A indicates that hinges are one of the items that are especially subject to wear. For more information on fire door assemblies, refer to NFPA 80 – *Standard for Fire Doors and Other Opening Protectives*. ■



**LORI GREENE, DAHC/CDC, FDAL, FDHI, CCPR**, is the Manager of Codes and Resources for Allegion. She can be reached at [Lori.Greene@allegion.com](mailto:Lori.Greene@allegion.com) or [iDigHardware.com](http://iDigHardware.com).

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## A Dangerous Slide

By Mark J. Berger

Is there any piece of hardware easier to install than a slide bolt? A few zip screws, maybe a hole in a frame and you are finished. Unfortunately, you could say the occupants of any public space trying to escape during an emergency when the slide bolt is in place are also finished.

Yet, simple slide bolts and even some complicated ones are ubiquitous. Maybe we should all keep screwdrivers on us at all times and run a contest to see who can remove the most slide bolts in a month.



### ▲ LOCK MUSEUM

Sometimes doors become repositories of improvements made over the ages. In this case, three locks but no exit device. The store was so narrow I could not take a straight picture; this was the best angle I could get. The old police lock is a version of a slide bolt taken to extreme, as it slides and bolts into both sides of the frame.

### ◀ ANOTHER SLIDE BOLT 2015 AND 2016

Every once in a while I have the opportunity to revisit a door. I first encountered this exit door with a latch and a slide bolt when placing my daughter's dorm room belongings in summer storage. The facility was the typical former factory converted into storage cubicles. I became a little friendly with the staff after they asked me why I took a photograph of the door (CCTV cameras and a monitor...). I mentioned the column and the code violation.

Looks like they mentioned something to the boss, because the next year, the latch lock had been replaced with an exit device. But amazingly, the slide bolt remained. I wish I knew who installed the exit device and what education or training they received.



#### ▲ NOT QUITE THE FINAL EXIT

How do I bolt thee? Let me count the ways. A slide bolt is one of them. They seem to have some code consciousness, as evidenced by the new mandated "Final Exit" sign properly affixed to the bottom of the door.



#### ◀ FUNKY SLIDE BOLT

Another door that was hard to reach. But if you made it to the door, you'd need to remove the screw placed in the hasp which prevents this slide bolt from opening.



#### EXTERIOR SLIDE BOLT

For those times when the roll down grill is raised and you still want to prevent people from exiting, nothing beats slide bolts at the top of the active and inactive leaf of a pair of doors.



#### ◀ GIANT BOLT

The funky slide bolt is much easier to operate than the housing blocking access to this slide bolt. I think you are supposed to stick your hand underneath the enclosure to operate the bolt. I did not get close enough to try.

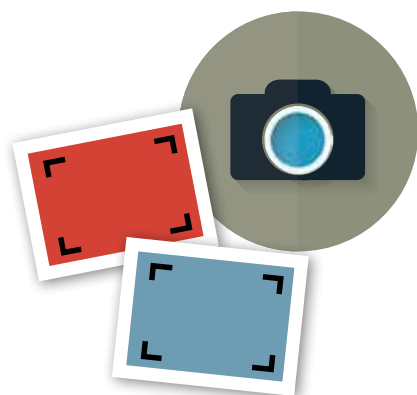


#### ▲ NICHT AUSGANG (NO EXIT)

Here's a reminder that badly locked doors are not unique to North American shores. A little fancier than a simple slide bolt and more attractive than the police lock, it is key activated. That makes it even more dangerous.

#### ◀ BLOCKED SLIDE BOLT

Sometimes just getting to the door with a slide bolt is impossible. Here the lever handle is used in tandem with a pole of some sort to hold a trash bag in place.



**MARK BERGER** is the President and Chief Product Officer of Securitech Group, as well as the chair of the Builders Hardware Manufacturers Association Codes & Government Affairs Committee. All "Real Openings" photos have been taken in public spaces with the goal of highlighting the prevalence of code violations and the need for vigilance to save lives. If you see something, say something.



The images shown here are not intended to reflect upon any specific manufacturer or products but are intended to help build awareness around the everyday code violations that occur in buildings over time, despite our members' best efforts to provide solutions to secure the life safety and security of the building occupants.



# doors + hardware

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- 3. READERS TAKE ACTION**—96% purchase, refer, specify, or recommend an advertised product and 58% contact the advertiser or visit their website

\*2016 Readership Survey

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*Deadline:* September 10

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**DECEMBER: Decorative and Restoration Hardware**

*Product Focus:* Decorative and Restoration Hardware/Custom Doors

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The Revenue  
Growth Habit



# Three Powerful Questions to Grow Your Business

By Alex Goldfayn

© iStock | LoveTheWind

### Want to grow your business? COMMUNICATE MORE.

Because the more that people hear from us, the more they buy from us. The less that people hear from us, the less they buy.

So, regularly and systematically, we must communicate more with customers and prospects. Tell the more about what they can buy from you, and what you can do for them. Ask them questions.

Here are three simple questions that you should be asking regularly:

#### 1. The “Did You Know?” Question

*Tom, did you know we also do x or y or z?*

Most customers only know about 20 percent of what you can sell them. Think about the tragedy of this. They need other things you can do for them. In fact, they probably buy these things somewhere else right now. And, of course, you would like to sell them these things, or services. But none of that is possible because they simply don't know.

Let's do some math: Let's say you have five salespeople, who speak with five people per day each. That's 25 conversations per day (and I'm not even considering all the emails they send here). This is 125 conversations per week, or 6,500 conversations per year.

Over the years, I've learned that the “Did You Know?” questions result in a sale approximately 20 percent of the times you ask it. With the math above, that's 1,300 new sales. What's the dollar value of your average sale?

Whatever it is, the math is interesting, the sales technique is simple, and it costs nothing. The key is that you and your staff ask this question systematically.

#### 2. The Reverse “Did You Know?” Question

*Tom, what else are you buying elsewhere that I might be able to help you with?*

Instead of you suggesting the product or service, this question involves you asking the customer what, specifically, they'd like to buy from you. You might add:

We're just as good at that as what we do for you now. Or: We both know that one P.O. is better than two P.O.s.

Ask the question. You'll be surprised that customers will answer it and then enter a conversation with you about buying that product or service from you.

#### 3. The “Percent of Your Business” Question

Terrific, powerful technique here: *Tom, what percent of your business would you say we get?* Tom may answer “20 percent.”

*Let's talk about moving that up to 30 percent. I'd like to help you more. What would that look like?*

It's an easy yes for the customer. You're asking to help him more; help him better. And, they only need to move 5 percent of their business from a couple of other suppliers over to you.

It's a small increase for the customer, but it's a 50 percent growth in business with this customer for you. These things add up quickly. Imagine this kind of increase with 10 customers—or 50. That's a lot of revenue in a hurry. All we have to do is ask for it.

### Pivot to the Sale

With every one of these three questions, we need to pivot to the business. That is, ask for the sale and close the deal.

I was teaching a workshop recently, and one of the participants—a business owner—shared that the vast majority of the salespeople who call on him don't ask for the business. He said “Some of them have me sold; I'm reaching for my wallet; but they leave without asking for the sale!”

We *must* ask. Here are some pivot questions which ask for the sake:

*Would you like me to add it to this order, or write it up separately?*

*I'd love to help you with that; should I write it up?*

Or, gentler: *Should we talk about that now, or schedule a call for Tuesday?*

### Getting Over the Discomfort

Why don't we ask these questions? Why don't we pivot to the sale? Because we don't want to offend the customer.

*We don't want to lose the customer.*

We don't want to be rejected. We don't want to appear rude or demanding. We don't want to take their time.

All of these are self-limiting beliefs. You're not taking their time; you're offering to help them more. You're not going to lose the customer; there's a reason they've been with you for 10 years, or 20 years. They love working with you. They're not going anywhere.

*With these questions, you are simply offering to help your customers more. They want to be helped more by you.*

And the beautiful thing is, they'll pay you for it! ■



**ALEX GOLDFAYN** runs The Revenue Growth Consultancy, which helps companies and sales departments grow revenue quickly and easily by implementing a system of simple communications techniques. To discuss growing your business in this way, email [alex@evangelistmktg.com](mailto:alex@evangelistmktg.com) or call him at 847.459.6322.





# Shelf Life

# OPTIMAL WAREHOUSE LAYOUT

By Danah Head

© iStock | RonFullHD

Lately, there has been a lot of interest in optimal warehouse layout, as well as obtaining and maintaining positive customer service ratios. These two things go hand in hand.

Imagine yourself at your local grocery market. There is a science to how the store is laid out. The market has a plan for you to spend money. That said, the teams behind a retail atmosphere are hard at work to get you to the back of the store to purchase milk and bread passing paper plates, laundry soap, and of course that pint of ice cream you swore off last summer. The goal of the retailer is to have you remember what else you need to buy. In distribution, this is both the same and also different.

If you have counter sales in your establishment, then yes, you have to be retail-minded as well as warehouse-minded. In this article, I want to cover the warehouse mindset. The people who work with and for you in the warehouse will appreciate your attention to detail in this area. However, so will your customers.

Unlike the retail universe, you might not want to put the most sought after items in the back of your warehouse, or just wherever they fit today. This is a serious drain on your labor dollars. Remember that labor dollars can be largely unseen, and easily wasted. What would take a picker five minutes to do in a properly laid out warehouse, can cost three to eight minutes more in a poorly laid out warehouse. Divide that amount of time by what they make on average per hour down to per minute, and multiply by the amount of times that happens in a day, and then by how many employees you have in that function. Can your company afford whatever amount you just came up with? If so, for how long?

The best way to avoid these types of hidden costs is to understand how to stop them from happening in the first place. I have written about the HITS report many times concerning purchasing, but I want to tell you that this can be used for warehouse layout as well. Your software more than likely has a way to identify your company's top selling items, a.k.a. HITS

report. This is great information for your purchasing team; however, it is also a perfect report to help your warehouse managers.

Whoever is responsible for deciding what shelf/bin houses which items in your warehouse needs this report. This person needs to be able to see what items are hot and fast movers and which items are not so hot. The HITS report will clearly show what items should be closest to the shipping area and which items should be further away.

The reason you would want this information in your warehouse management hands is to reduce the steps of your pickers, thus reducing lost labor dollars. You can do this by coupling HITS with another function more than likely available in your software, pick path. This may be a more manual function depending on how your warehouse is currently numbered, however still a viable and useful spend of your time to figure out.

First, make sure that your warehouse is laid out in a logical fashion. The best one I have ever worked in was expandable. If you walk out to your warehouse, find the closest aisle of racks to the shipping area. This would be the area that you want your pickers to end up when they are done picking. Your software will want to use logic and start your picker off at an "A" location and end at a "Z" location. This process will seem less tedious if you think like your computer software.

An alphanumeric system is easiest to use and expand upon as you grow. For example, start with "Z" (if you have 26 aisles, "ZZ" if you have more). The second character is the rack (typically an 8' span). On that aisle #01 (on the ground) and then the next one up #02, then #03...all the way up to #435, if you have that high of ceilings.

The third character is the shelf in that rack. So start with "A" for floor or bottom shelf. The ideal designation would be, like an address (odds on one side, evens on the other), Z01A (first aisle, first set of shelves, floor). The next set of uprights would start at: Z03A...(the "Z" aisle, the 2nd set of racks, and the shelf is on the floor). Now you have a basic bin locating system. You can even add another number in there (or letter) for the location on each specific shelf, if you need to be so specific.

The reason for going up with your numbers and stopping at the top is that this system helps potential future expansion. What if you need to add another shelf for smaller items and now you have 436 locations on the Z01 rack? There would be less work involved to add a location in this type of numbering system than trying to add a shelf if you just numbered the "Z" aisle starting at one and going all the way down the aisle in order each shelf with the next sequential number.

You'll need to decide what goes on those shelves/bin locations. This is where you bring in the HITS report. This report will tell you and your warehouse management

what items the customers are buying. The highest hit items should hang out around where the shipping department is located (your newly-designated "Z" aisle). Sometimes, depending on what you are selling, you may have some size restrictions to this rule. In most cases, this should be a feasible system.

Finally, we get to customer service. One hundred percent customer service is, of course, your goal as a sales-oriented company; however, should you have 100 percent customer service on every single item in your catalog? The answer is, no. (Wait did you say yes? I won't tell.)

The reason you cannot have 100 percent customer service on every single item in your catalog is that your purchasing department will be spending money on items that do not sell as quick, or as often thus tying up precious inventory dollars. That is why you can never have enough money, or for that matter space, to reach 100 percent customer service rates.

The only items with 100 percent customer service levels should be your top hit items. Run a customer service report on each item and add it to your HITS report in a separate column. This would mean that the high hit items you just moved to Z0101-Z09436 (as an example) should never be out of stock. They should have high safety stock numbers and always be available. No back orders, unless something out of the ordinary happens. These are the things your customers are ordering and desire. Back orders are OK on items that are further away in the warehouse that are less frequently purchased and are in the lower ranks of your HITS report. The reason it is ok? In most cases, your customers are not expecting you to have those items. I reiterate, you *cannot* have 100 percent customer service on every item in your catalog, period.

So now imagine you have combined your HITS report with the customer service levels of each item you sell. Then you smartly added a new pick path for ease of picking and, all hot and fast movers are close to your shipping area for faster picking. Think of the money you are saving on invisibly spent labor dollars and increased customer service, and I would say you are probably owed at the very least a pint of your favorite ice cream! As always, I love ice cream, people who share, and look forward to hearing your favorite flavor and help you employ this idea in your warehouse. So be sure to send me an email or give me a call. ■



**DANAH HEAD** is an Executive Advisor for The Distribution Team, a firm that specializes in helping distributors become more profitable through strategic planning and operating efficiencies. She holds an MBA in technology management for supply chain and completed work for a master's in adult education and corporate training. For more information, call 479.381.8495 or e-mail [danah@distributionteam.com](mailto:danah@distributionteam.com).

# Impact

## Quotable

I have been briefly exposed to new software that is being piloted by ASSA ABLOY to integrate with BIM software as it relates to the door and hardware industry. While most architects in my market have not yet embraced BIM for our scope, this is definitely on the horizon.

**Josh Manes**

*Vice President, Operations  
Spalding Hardware*

Ving Card essence (the hotel card reader that allows you to unlock the door with an app). This is not a new technology but it's certainly emerging. Also the idea of "smart homes" is starting to grow in popularity. Your appliances (washer/dryer, refrigerator, dishwasher etc.) are all very "smart" and digital. Is it only a matter of time before the door or hardware also become smart?

**Joselyne Walter**

*Masonite*

The trend that we are seeing is the slow migration of electrical hardware including EPTs, electric hinges, electric locks, electrified exit devices, DPS, power supplies etc. from Division 08000 to Division 28000. With CSI pushing the products traditionally found in 08000 to 28000, this is the trend that concerns us most in the next five to 10 years.

**Chad Mehlberg**

*Director of Engineering  
LaForce, Inc.*

DHI asked our Steering Committee of next generation industry leaders to comment on any new trends or emerging technologies they are excited about or that they plan to learn more about. Here's what they had to say:

IoT (Internet of Things). Our industry has moved more toward electronic access control, and those of us who have embraced it are now being moved further into other integrated products. The IoT provides for increased convenience, but also increase vulnerabilities to hacking. In many cases, companies are coming up with new technologies faster than they are preparing for backdoor threats to their products. One in particular is mobile credentials. That technology needs to get worked out better from an IT security perspective, but I think it will continue to grow and expand to being much more mainstream.

**Ben Boomer**

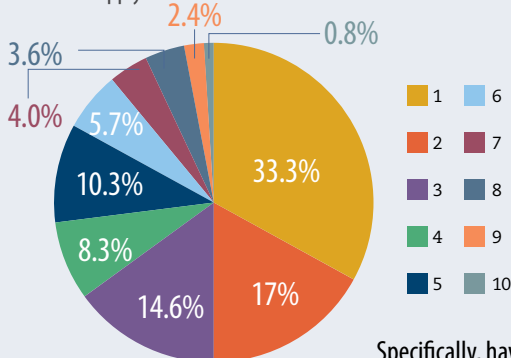
*Vice President, TCH*



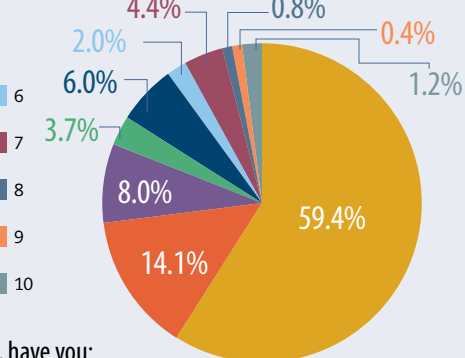
## SEPTEMBER'S 60-SECOND SURVEY RESULTS

Building Information Modeling (BIM) has been with us for at least a decade or more, depending on its debated date of birth. Manufacturers have been creating BIM models with their product information for some time now, but how have contract hardware distributors engaged with BIM by now? We invited distributors to answer the following questions:

On a scale of 1 to 10, with 1 being not all and 10 being very familiar, how would you rate your knowledge and understanding of the BIM process in construction materials supply?



On a scale of 1 to 10, with 1 being not all and 10 being heavily invested, have you invested resources in understanding BIM and preparing to do business in the BIM world?



Specifically, have you:

Participated in specific detailed education about engaging in BIM designed projects?

**NO** 84.1%  
**YES** 15.9%

Invested in the software to engage in BIM designed projects, specifically bid for material supply to the GC or End User?

89%  
11%

Contracted with a GC or End User to supply material and/or labor in a BIM managed project?

81.2%  
18.8%



# Classified

## PROJECT MANAGER/ SUPERVISOR

### New Castle, DE

Are you an experienced specialist in sheet metal production management (steel door industry)? We are seeking a production manager/supervisor for the upcoming opening of our satellite factory location.

Working in a highly stimulating environment and reporting to the main factory's director of operations, you will have complete responsibility for your production site.

### To excel in this role, you must:

- Always have customer satisfaction top of mind and be able to instill this value in your employees;
- Be able to perform the same tasks as your employees (operate production machines) and be able to train and guide them in their learning processes;
- Through your leadership, motivate your employees to follow your lead in ensuring customer satisfaction.

### Job responsibilities:

- Supervise and oversee plant production, quality and safety requirements while maintaining a clean, orderly working environment and ensuring compliance with all company policies.
- Act as a key contact with our customers and establish strong business partnerships with them.
- Train, evaluate, supervise and assign employees in order to maintain an efficient, productive workforce to meet efficiency and productivity requirements.
- Oversee accurate shop floor reporting for production, scrap, and other company metrics.
- Evaluate work areas and make changes as necessary to ensure optimal use of manpower and equipment.
- Keep Manufacturing Director informed of general operations, work flow, and possible constraints to meeting production schedules, and maintain open communication channels to facilitate resolution to those constraints.

### Job requirements:

- Associate degree or equivalent.
- Previous management or supervision experience in a door manufacturing facility strongly preferred (steel door/frame industry) .
- Considerable knowledge of management practices and policy interpretation to independently evaluate, select, and apply techniques and standards.
- Strong interpersonal and communication skills and the ability to function independently and as a part of a team.
- Capacity to develop close relationship with customers.
- Computer skills: word processing software, spreadsheet software, order processing software, manufacturing software.

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# Classified

## PROJECT MANAGERS & ESTIMATORS

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## Demand for Fire Door Inspections Expected to Increase

By Paul Baillargeon, AHC, FDAI

### More than a year ago, the Door Security & Safety

Foundation (DSSF) kicked off its mission to provide awareness and education sessions for the revised care and maintenance and annual inspections of fire door assemblies standards required by NFPA 80's 2007 thru 2013 editions, *Standard for Fire Doors and Other Opening Protectives*.

With the rise in awareness of the importance of fire door assemblies in buildings, there is more recognition of the role that fire doors play in protecting the lives of people in buildings. This all starts with the owners, architects and building code officials, and where they place the emphasis; until now, they had never incorporated the fire door in this concept.

More than 15 months later, the Foundation has accomplished its initial goal of delivering both awareness and education presentations to help stakeholders understand the code implications and the complexity of the architectural openings' products and applications, as well as the critical role they play in achieving and maintaining the balance between life safety and security.

With the Centers for Medicare and Medicaid Services' (CMS) recent adoption of the 2012 edition of NFPA 101, the *Life Safety Code*, requiring fire door assemblies to be inspected annually, we expect significantly greater demand for the Foundation's awareness programs and annual inspections of fire doors within healthcare facilities. CMS has notified its state agencies that it will begin surveying for compliance with the 2012 edition on Nov. 1.

DSSF has identified more than 6,000 hospitals across the United States as potential sites for the awareness and education programs specifically designed for the healthcare community. The education role for us starts with contractors, architects, and fire and building code officials. The bigger and more varied the audience, the better chance we have to reach the influencers, effect change and fulfill our mission to promote secure and safe openings.

Here's a brief summary of the Foundation's awareness activities this past quarter:

- **American Society for Healthcare Engineering (ASHE)** – Our participation in ASHE meetings, training and conferences culminated with attendance and

participation in ASHE's Annual Conference in July. Dozens of attendees requested information on how to obtain education and training from the Foundation for their facility maintenance administrators and mechanics. This past quarter, we presented 16 events and training sessions to ASHE members at their state chapter dinner meetings, state chapter conferences and regional conferences.

- **Outreach to Fire Marshals** – We've provided awareness and education sessions to state fire marshals in Virginia, Georgia and Ohio. We also attended the national state fire convention in July, where we met with 30 state fire marshals from across the U.S. All of them were cognizant of the revised NFPA fire door assembly inspection requirements, and many of them asked us to participate in their upcoming training programs.
- **Awareness to Architects** – We have presented several Lunch & Learn awareness programs to architectural firms whose primary clients are in the healthcare market. We reviewed the responsibilities of the architect, who represents the interests of the building's owner to promote and require the new fire door inspections as part of a building's initial commissioning process.
- **Awareness to Colleges and Universities** – We've recently seen an increased interest from universities across the country in receiving our training on NFPA 80's fire door care, maintenance and inspection requirements. We provided our Facility Maintenance Personnel training program to universities in New York and Georgia, and we anticipate increased requests from this group in the 2016-17 education year.

If you would like to learn more about bringing the Foundation's education and training to your customer's facility or staff, contact me at [pbailargeon@doorsecuritysafety.org](mailto:pbailargeon@doorsecuritysafety.org). ■

**PAUL BAILLARGEON, AHC, FDAI**, is Vice President, Technical Consultant, for the Door Security & Safety Foundation. He can be reached at [PBaillargeon@doorsecuritysafety.org](mailto:PBaillargeon@doorsecuritysafety.org).

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