# SPECWORK

CSI® LITTLE ROCK CHAPTER

Little Rock Chapter - Chartered November 1965 September 2026




## In This Issue

# President's Thoughts

By: Billy J. Mathis, FCSI, CDT, Little Rock Chapter President

There are many things I could say that describe my experience as a member of CSI, but some things cannot be expressed in precise language. I could talk about the available Certifications, CDT, CCS, CCPR and CCCA. All of these provide people with training in various topics that are both the same with all and in different ways depending on the certification involved. I could talk about the network of people available for you to connect with that can give you access to the general and specific requirements at their particular location. Finally, I could speak to the opportunity for a person to learn leadership and management skills that normally only come around after years and years of experience where it is you work. All of this is true and all of this is regularly talked about in the various documents and information packets about CSI.

What I would like to concentrate on are first the personal benefits (for want of a better word) of membership. I can remember when I first attended a meeting of the Little Rock Chapter, I tried to be a wallflower and observe the goings on. This lasted about 5 minutes when I was introduced to Jan Sanders, Betty Hayes, and Michelle Christian. These were leaders in the Little Rock Chapter and in CSI in general. Just how dedicated to CSI and its principles I would find out but for now I was introduced around the room and settled into a chair with a table of other members. We had a lively discussion of what was going on around the area as well as issues they had encountered. They also wanted to listen to me and learn what I knew and what I did. Before I knew it, I was heavily into discussions about specs and their importance. I also was introduced to people that I could call on if I had questions. A little while later, I was invited to attend and observe a Board Meeting as I had expressed an interest in volunteering. It was quite interesting and before I knew it I was the understudy for the current Treasurer. I never realized how extensive those contacts would become until I attended my first Gulf States Region Leadership Conference and then my first CSI Convention. There I met people from all of this region and all over the US. This only whetted my appetite for getting further involved eventually leading to my serving as Gulf States Region President and a member of the Institute Board of Directors. All along the way I met friends and mentors who helped shape my future in the construction industry and led me to the leadership roles I took great pride in down the line. This is just a small part of what I have gained from membership.

Secondly, I would like to discuss the crossover of experience by volunteering to be in the leadership of an organization like CSI and the acceptance of responsibilities in your current role at whatever firm you are employed. Being a leader is basically the same whether you are taking on a role with a Board of an Organization or leading a team working on a Project. There are so many people who are thrown in the deep end with little or no instruction and forced to swim. This can create many problems from inexperience, fear, or just plain inability to lead because you were never mentored in how to do this. CSI leadership roles are there for you to work out the various levels of leadership. Some of the levels of leadership include following a leader who is established and can mentor you to being that mentor for someone else once you gain the experience and confidence. You can then take that and translate it to your daily work and through demonstration, gain in leadership within you company.

Finally there are the rewards of a job well done. In most firms, you might get recognition in a meeting or you might get a little bonus. In CSI, we have an Awards Program at all levels. Since CSI is an all volunteer organization and you don't get paid for your work, the Awards Recognition is the only way that the organization at all levels can "pay" you for your efforts. Each Chapter has various awards from those who volunteered to make special event or fundraiser successful to those who have led the Chapter for the entire year. There are even Named Awards which recognize those who fulfill the basic requirement of those leaders who came before us and set the standards that we all measure ourselves against. In the Little Rock Chapter we have the Albert R. Hibbs Award and the Betty C. Hayes Award. While I never knew Mr. Hibbs, I did know Betty Hayes. She was a fantastic Mentor. She could be rough spoken, she could be stubborn, and she was a fount of knowledge that anyone with a right mind would make every effort to tap. I was one of the team who created the Award and surprised Ms. Hayes during an Awards Ceremony. It was a great honor to help set this award up and in the long run an even greater honor to receive the Award. You have the same types of awards at the Region levels and at the Institute level. These awards are cherished by those receiving them as they know their peers have seen and nominated them for the award. That in itself means more that any plaque or certificate.

As you can see, there is so much more to CSI that is spelled out in the pamphlets. If you are interested or at lease curious, please feel free to contact me or any of the officers listed at the end of this newsletter.


One of the best benefits of CSI membership is the opportunity to lead — and our Little Rock Chapter is looking for a few members ready to bring fresh ideas and energy to our Board of Directors. These roles are very manageable (often handled over lunch hours) and are great for emerging professionals and seasoned members looking to give back.

We're currently looking to fill the following positions:

**Director of Programs** - Help bring CSI to life by coordinating monthly programs. This includes reaching out to speakers, organizations, or product reps to host lunch-and-learns, tours, or occasional evening events. Perfect for someone outgoing who enjoys networking and planning ahead.

**Director of Communications** - This behind-the-scenes role keeps our chapter connected and informed and includes:

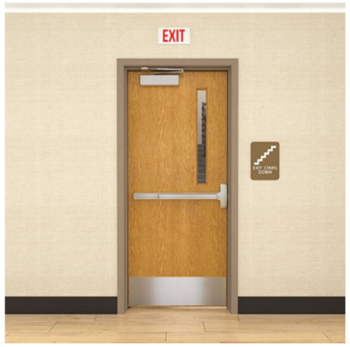
Website Manager – Help maintain and grow our chapter website into a go-to resource for the local construction community.

Newsletter Editor – Pull together a monthly newsletter highlighting chapter news, upcoming events, member spot lights, and industry content.

If you've ever thought about getting more involved but weren't sure how — this is your sign. A small time commitment can make a big difference for our chapter. Interested? Let us know — we'd love to talk with you!

# Quick Question: Fire Door Bottom Clearance

By: Lori Greene, I Dig Hardware Blog




The specifics on today's Quick Question depend on which edition of NFPA 80 you're referring to (but the intent didn't change, IMO):

Where is the bottom clearance of a fire door measured? From the bottom of the door to the bottom of the frame, the slab, the top of the flooring or threshold?

The language of NFPA 80 with regard to bottom clearance has changed over time. When I first started studying NFPA 80 in the 1980's, the amount of clearance permitted by the standard varied depending on the type of flooring. In the 1999 edition, this information was presented in a table:

**Table 1-11.4 Clearances Under the Bottoms of Doors**

| | Swinging Doors with Builders Hardware | | Swinging Doors with Fire Door Hardware | | Horizontally Sliding Doors | | Vertically Sliding Doors | | Special Purpose Horizontally Sliding Accordion or Folding Doors | |
|---|---|---|---|---|---|---|---|---|---|---|
| Clearance Between | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm |
| Bottom of door and raised noncombustible sills | 3/8 | 9.5 | 3/8 | 9.5 | 3/8 | 9.5 | 3/8 | 9.5 | 3/8 | 9.5 |
| Floor where no sill exists | 3/4 | 19.1 | 3/4 | 19.1 | 3/4 | 19.1 | | | 3/4 | 19.1 |
| Rigid floor tile | 5/8 | 15.9 | | | | | | | | |
| Floor coverings | 1/2 | 12.7 | 1/2 | 12.7 | 1/2 | 12.7 | | | 1/2 | 12.7 |

In the 2007 edition of the standard, a pretty major change was made, and Section 4.8.4 calls for the clearance under the bottom of the door to be a maximum of 3/4 inch – without variations for different types of flooring. When the bottom of the door is more than 38 inches above the floor (ex. counter shutter or chute door), the maximum clearance at the bottom is 3/8 inch or as specified by the manufacturer's listings. This language also appears in the 2010 and 2013 editions of NFPA 80.

In the 2016 edition, a paragraph was added to Section 4.8.4 that addresses products listed for use on doors with bottom clearance in excess of 3/4 inch. This would permit a door bottom or sweep to be installed on a door with more than 3/4 inch of clearance, if the listings of the product permitted the larger clearance. There are specific products designed to bring these doors back into compliance, so it was important to address those products by adding this paragraph.

Additional changes were made in the 2019 edition. Along with the previously included paragraphs, this edition clarified that the clearance under the bottom of the door is measured from the bottom of the door to the top of the finished floor or threshold. The section also addresses latching hardware projecting from the bottom of the door, permitting a maximum clearance dimension in accordance with the installation instructions for the hardware but not to exceed 3/4 inch (some instructions require the clearance to be less than 3/4 inch). The section also states that where a threshold is installed, the clearance must be in accordance with the hardware manufacturer's listings and installation instructions. Section 4.8.4 in the 2022 edition is consistent with the 2019 edition.

In the 2025 edition, more changes were made. The section starts with this statement: Where required by Chapters 6 through 16, clearance under doors shall comply with 4.8.4. References to Section 4.8.4 are found in Chapter 6 – Swinging Doors with Builders Hardware and Chapter 9 – Special-Purpose Horizontally Sliding, Accordion, or Folding Doors, along with Chapter 5 – Inspection, Testing, and Maintenance.

The 2025 edition also simplifies the paragraph addressing excessive clearance by stating: Listed fire door accessories for mitigating bottom clearance more than 3/4 in. (19 mm) shall be permitted. Annex A also includes several explanatory paragraphs, including one related to the products for mitigating excessive clearance: Where clearance under the bottom of a fire door exceeds 3/4 in. (19 mm), door sweeps, door bottoms, or other devices specifically listed for use on fire doors and addressing the excess clearance could be a viable option. Utilization of such devices cannot prohibit the full engagement of the bottom latch bolt.
In my opinion, the intent of all of these editions of NFPA 80 is that the clearance measurement is taken from the bottom of the door to the top of the flooring or threshold. There are diagrams in Annex A that clarify this as well. That's my final answer!

# Tactile & Auditory Feedback

By: Colleen Furlong, Allegion

Textures and auditory cues in door hardware can convey important information about an opening and its surroundings. Incorporating these elements requires consideration of design best practices, applicable code requirements and practical solutions. The goal is to elevate the user experience and deliver openings that are welcoming, inclusive and compliant. In today's guest post from Colleen Furlong of Allegion you can use the links below to navigate to specific sections.



**How Tactile and Auditory Cues Improve Accessibility in Door Hardware**

True inclusivity isn't one dimensional, it's a holistic approach that puts the user at the center. For door hardware, that means considering all the ways that people experience and interact with their environment. Cues about the environment come from all our senses, including sight and sounds. Taking those into consideration when designing solutions is a fundamental part of designing a space that is intuitive and welcoming to all.

Designing for the Senses

Tactile and auditory feedback are important tools for communicating information about the environment, especially to those with visual impairments. There are many ways door hardware can be designed to incorporate these elements; knurling on levers, auditory signals from products and usage of braille on devices and signage are common examples. Ana Sofia Esquivel, industrial designer for Allegion, shares that "intentionality is crucial when determining how best to apply textures and auditory cues. Allegion uses these elements strategically, consistently and sparingly, so as not to confuse the user. Likewise with auditory feedback, frequency and tone of auditory signals are carefully designed to ensure there is clear intuitive distinction between positive and negative feedback so users can correctly interpret the signal."

**Navigating the Code Confusion**

Tactile warning is an aspect of the accessibility standards that has changed over the years. In early revisions of the ICC A117.1 (Accessible and Usable Buildings and Facilities), there was a requirement for tactile warning on doors leading to hazardous areas such as electrical and mechanical rooms. In the decades since, these references have been removed from the standard, though some state standards still include them.

In addition to hazardous areas, some facilities considered using knurling on stair doors. Lori Greene, Allegion manager of codes and resources, says “The thought behind this idea was that someone who is visually impaired could fall down the stairs, but my concern is that the person might not enter the exit stair because they believe that the door leads to a hazardous room. This would be especially true if the stair door was equipped with a lever handle. Because we don’t want to discourage someone from using the exit, a much better solution would be tactile lettering and/or braille on the touchpad of the panic hardware, indicating that the door leads to a stair. The tactile signage now required by the model codes and accessibility standards for room identification will also help to prevent someone from unknowingly entering a stairway.”

Detectable warning is a distinct and separate issue addressed by the codes and standards. Detectable warning as defined by the 2010 ADA Standards for Accessible Design is “A standardized surface feature built in or applied to walking surfaces or other elements to warn of hazards on a circulation path”. It features raised domes in the walking surface, and is often required at transportation platform edges and similar changes in level.

**Solutions Built with Intention**

Tactile and auditory feedback is incorporated in a variety of products across Allegion’s portfolio to promote accessible and inclusive design. From Von Duprin and Schlage levers with options for knurling to braille signs, to auditory feedback from electronic solutions, these features are designed with the user in mind to provide feedback through a variety of senses to make the opening more intuitive and convey important information to the user.

**Von Duprin Panic Hardware**

Von Duprin offers several different tactile options, both on the access and egress side of the door. On the egress side of the door, tactile feedback can be added to the push pad and crossbar in two ways. First, there is the option to add knurling to the push pad/crossbar. Knurling gives the touch pad a rough texture that can be used to signal a hazard. In addition, there is a braille option that includes raised letters and

braille on the touch pad. The default braille message provided by Von Duprin is “CAUTION STAIRWELL”. Customized messages can be accommodated up to 20 characters via the engineering specials ordering process. On the access side of the door, select trims, including the 360L, 370L and 996L, can be ordered with tactile feedback.

**Schlage Mechanical Locks**

A number of Schlage locks offer the option of milled or knurled tactile warnings on levers. Within the Schlage product portfolio, Schlage Grade 1 L Series mortise locks feature the largest number of lever designs capable of including this option. In addition, the L Series also offers the largest variation of available lock types (among the Schlage product portfolio) including mechanical, electrified, electronic and multi-latch locks for which tactile warning options extend across the entire family. Similarly, ND Series Grade 1 cylindrical locks offer tactile warning options on most lever styles which are shared across mechanical, electrified and electronic lock solutions. Additional Schlage lock products featuring tactile warning options include AD and CO Series electronic locks, as well as ALX and S Series mechanical locks.

**Trimco Custom Capabilities**

When faced with a design challenge that standard hardware cannot address, Trimco can aide in the design and production of custom hardware solutions. From custom door pulls, plates and accessories, Trimco’s industrial designers can help create a solution that meets the project’s needs. Designed for high performance and crafted by skilled artisans, Trimco’s custom solutions use high quality materials to meet the demands of the application.

**Allegion Electronic & Electrified Solutions**

We design sound with intent—tuning tone, pitch, duration and frequency— so our electronics aim to deliver clear, inclusive feedback that supports safety, accessibility and intuitive use. A simple, consistent sound language (such as short rising chimes for success and lower falling tones for denial) enables users to understand what the product is communicating.

Audio and visual cues work together to create integrated and intuitive feedback that enhances usability for people with a wide range of abilities. We then validate the entire interface with diverse users to ensure it is intuitive, pleasant, and aligned with the brand.

The difference in the power-assist operators described above and the LCN power assist feature is that LCN operators .

**Schlage Mobile-Enabled & Smart Readers**

The Schlage MTB11 and MTB15 are contactless, mobile-enabled smart readers. Schlage mobile enabled smart readers allow users with motor impairments to simply present a lanyard, fob or smartphone near the device to gain entry. Supporting Bluetooth and NFC mobile credentials provides an added inclusivity bonus: it allows individuals with visual or cognitive disabilities to manage access using their own smartphones, leveraging built-in features like screen readers, voice control and large text.

When specifying a model, it is important to consider the form factor that best meets users' needs. The MTB11 is a narrow, mullion-mount reader, while the MTB15 is a wider, single-gang wall mount. The single-gang design of the MTB15 offers a slightly larger physical "target" area compared to the MTB11, making it significantly easier for users with tremors or limited hand-eye coordination to tap their credentials.


**LCN Automatic Operators**

LCN® offers auto operator solutions that incorporate clear audible cues to help users quickly understand system status and responses.

The LCN 9500IQ / 2800IQ Senior Swing™ Series uses an audible beep primarily as a UI confirmation (e.g., confirming settings have been applied with an audible beep) or to warn when the door has been triggered to open but cannot do so (e.g., because of an error or because the operator is switched off).

Another example is the LCN 6400 COMPACT™ Series, which provides tonal feedback during calibration: rising-pitch tones confirm a successful calibration, while falling-pitch tones indicate a failed calibration. These simple auditory cues let users quickly recognize status and errors without needing to look at the display.

**Elevating Inclusivity**

Allegion's goal is to provide a truly inclusive experience, going beyond just meeting the bare minimum compliance requirements. Allegion's hardware professionals leverage tactile and auditory feedback as just one of the many tools they have at their disposal to design openings that are intuitive, accessible, and welcoming to all.

# Decoded: Access Control Update

By: Lori Greene, I Dig Hardware Blog

This Decoded article addresses important code clarifications related to electrified hardware used in access control systems. I hope this article will help with more consistent interpretations of the requirements.

The most common access control application is one where the reader limits access but the door hardware allows free egress. This is considered a normal locking arrangement.

In a previous Decoded article, the topic of normal locking arrangements was addressed. This electrified hardware is the most common type of access control application, where the hardware controls access/ingress, but does not affect egress. With these systems, the door hardware – such as a lever handle or panic hardware – is used to unlatch the door from the egress side, just as it would if the hardware was not electrified. Building occupants can exit through the door at all times, regardless of the status of the access control system.

Although this type of access control hardware operates to allow egress in the same way that mechanical hardware does, there has been confusion resulting in inconsistent interpretations of the model code requirements. Both the I-Codes and the NFPA codes include sections addressing special locking arrangements such as delayed egress, controlled egress in health care facilities, and electromagnetic locks released by a sensor or a switch in the door-mounted hardware. These sections do not apply to electrified hardware that allows egress via mechanical operation of the hardware.

Over the last few editions of the model codes, progress has been made to help clarify the intent of the code requirements related to electrified hardware. Many code changes have been implemented, including an important clarification in the 2024 edition of the International Building Code (IBC) as well as the Commentary edition; both have been edited to better address the intent of the code regarding access control doors.

I have been involved with many situations where code officials, architects, integrators, and security consultants attempted to apply the special locking arrangements sections of the adopted code to door openings equipped with normal locking arrangements. Until the 2024 edition of the IBC, there was no section in the model codes that specifically applied to electrified hardware that is not one of the special locking arrangements. The intent was that the hardware used in normal locking arrangements must comply with the requirements that apply to mechanical door hardware.

For example, consider a very simple access control system where the reader on the outside of the opening controls an electric strike. The electric strike releases the latch for access when the proper electronic credential is presented to the reader. On the egress side, turning a lever handle or pushing the touchpad of a panic device retracts the latch to allow a building occupant to exit; the operation would be the same if the door had mechanical hardware without an electric strike.

Other examples of this type of system – a normal locking arrangement – would be:

electromechanical lock where the access control system controls access via the outside lever and the inside lever allows free egress at all times

electrified lever trim for panic hardware or fire exit hardware, where the access control system controls access via the outside lever and the touchpad or crossbar on the panic hardware allows free egress at all times

electric latch retraction panic hardware or fire exit hardware, where the access control system electrically retracts the latchbolt for access, and the touchpad or crossbar on the panic hardware allows free egress at all times

If the code sections addressing special locking arrangements are applied to a door with a normal locking arrangement, it can result in modifications that are unnecessary and sometimes even detrimental to the operation of the assembly. I have seen normal locking arrangements with an auxiliary push button marked “push to exit” beside the door. This is required for an electrified lock that is released by a sensor but serves no purpose for a door with hardware that allows free egress via the lever handle or panic hardware. I have also seen normal locking arrangements where the code official required the electrified hardware to be unlocked upon fire alarm or power failure. This is required by code for some types of special locking arrangements but not for normal locking arrangements. When the hardware allows free egress at all times, unlocking the electrified hardware during a fire alarm or power failure negatively impacts security while doing nothing to improve egress or life safety.

**IBC Commentary**

Helping code officials, architects, and others to apply the correct code sections to each type of electrified hardware application has been a challenge, but the 2021 and 2024 IBC Commentary editions help to clarify the intent of the code. Regarding Section 1010.2, Door Operations, the Commentary states that doors in a means of egress can be locked on the outside/access side, requiring a key or electronic credential for ingress, as long as the egress side can be unlocked without the use of a key, tool, special knowledge or effort.

The 2021 and 2024 IBC Commentary editions also addresses a common question:

"If a door has an access control system (such as a card reader and electrical locking hardware affecting ingress into a space) what does the code require for an access control system on the ingress side of the door?"

As stated above, the answer to this question in the Commentary clarifies that some egress doors with electrified hardware are considered special locking arrangements and must comply with one of the applicable sections of the code. However, according to the 2021 and 2024 IBC Commentary editions, the most common application for electrified hardware includes an access control reader on the ingress side to control access, with door hardware on the egress side that allows free egress at all times.

This electrified lockset incorporates a credential reader on the access side, but the inside lever always allows free egress. This is not a special locking arrangement.

The explanatory language in the Commentary states:

"***A door with this most common configuration of electrified hardware is subject to the same requirements as a door with a mechanical lock controlling ingress (such as a lock operated by a key on the outside): the door must allow free and immediate egress with one releasing motion to unlatch the door, without the use of a key, special knowledge or effort, and with no tight grasping, tight pinching, or twisting of the wrist***."

In addition, the accessibility requirements limit the amount of operable force that may be used to release the latch, and the codes and standards require releasing hardware to be mounted between 34-48 inches above the floor (with some exceptions).

The clarifications in the Commentary will help with interpretations related to electrified hardware, and the intent has been further clarified in the 2024 I-Codes. A change was made to the 2024 IBC which requires doors with access control to have hardware that complies with one of the sections addressing special locking arrangements, OR hardware that "shall be readily openable from the egress side without the use of a key or special knowledge or effort." The vast majority of access control doors are readily openable as required by the code, so compliance with the special locking arrangements sections would not be mandated.

**UL 294 – Standard for Safety Access Control System Units**
**UL 1034 – Standard for Safety for Burglary-Resistant Electric Locking Mechanisms**

One of the problems created by interpreting every door with electronic access control as a special locking arrangement is related to the listings for electrified hardware. These include UL 294 – Standard for Safety Access Control System Units and UL 1034 – Standard for Safety for Burglary-Resistant Electric Locking Mechanisms. The model codes do not require every item of electrified hardware to be listed to these standards – it is only required by some of the sections

addressing special locking arrangements. The 2024 edition of the model codes has further clarified that the listing requirements apply to the electromechanical and electromagnetic locks that are used in these systems, not to every component of the special locking arrangement.

In the 2024 IBC, either the UL 294 listing or the UL 1034 listing is required for locks that are part of a system incorporating delayed egress locks, controlled egress locks in health care facilities, and locks released by a sensor or a switch in the door-mounted hardware (typically electromagnetic locks). If a system that incorporates electrified hardware is not considered one of these types of systems, the IBC does not require the listings. The IBC Commentary clarifies the intent of the code, stating:

***UL 294, Standard for Access Control System Units, and UL 1034, Burglary-Resistant Electric Locking Mechanisms, both apply to construction, performance and operation of systems that control passage through a door and the electromechanical or electromagnetic locking devices of these systems. It may be appropriate to recognize that this code does not require the units of an access control system (ingress control system) to be listed to UL 294 or UL 1034 (refer to Section 1010.2.9).***

A change was made to the 2024 edition of the IBC (ICC proposal E52-21) and allows electrified locks to be listed to either UL 294 or UL 1034. Similar to the 2021 edition of the code, these listings are required only for certain types of special locking arrangements and not for all electrified hardware.

**Conclusion**

Electrified hardware can be very confusing, especially when applying the code requirements to the various types of access control systems. In summary, here are a few things to keep in mind:

- Special locking arrangements are those where egress may be affected by the access control system, and the model codes include sections that apply to each of these applications.
- Access control systems that limit access but do not affect egress are typically considered normal locking arrangements and must be readily openable from the egress side.
- Refer to the adopted code for specific requirements that apply to special locking arrangements. The I-Codes and the NFPA codes vary slightly, and there may be state or local modifications to be aware of.
- The 2021 IBC Commentary and changes made to the 2024 edition of the IBC have helped to clarify the intent of the code on the requirements for special locking arrangements vs. normal locking arrangements.

For more information, refer to the adopted codes in the project's jurisdiction, and consult the Authority Having Jurisdiction (AHJ) if assistance is needed. The IBC Commentary, which includes explanatory information clarifying the intent of the IBC, can be purchased from the website of the International Code Council: ICCsafe.org.

# Decoded: I-Code Requirements for Interlocks

Posted by Lori Greene, I Dig Hardware Blog

This month's Decoded question is related to a new section of the I-Codes that has been approved for the 2027 editions:

*In which use groups is an interlock permitted by the International Building Code (IBC) and the International Fire Code (IFC)?*

An interlock is a set of two or more doors in series, where only door can be opened at a time. Opening one door effectively locks the other door(s) until the open door comes to a close. Interlocks are often used in clean rooms or other laboratory environments to limit air transfer, infection control areas in health care facilities, and high security areas such as data centers.

In the 2024 editions and prior editions of the IBC and IFC, interlock applications were not addressed by the model codes, except as related to sallyports in detention and correctional occupancies. This meant that each interlock application had to be approved by the Authority Having Jurisdiction (AHJ), often resulting in inconsistent applications from one project to the next. Safety features designed to balance life safety and security are crucial for interlock applications; without them egress could be compromised, risking the safety of building occupants during an emergency.

A new section has been approved for the 2027 edition of the I-Codes, addressing interlocks, or as defined in the codes, Control Vestibules: A space with doors in series that are interlocked such that when one door is open other doors are restricted from opening. These applications may also be called airlocks or mantraps. A similar set of code changes was proposed for the 2027 edition of NFPA 101, Life Safety Code, but the proposal was not incorporated. The changes approved for the 2027 I-Codes do not apply until that edition of the code is adopted in a project's jurisdiction, but until then, the new code section could be used as the basis for a request for a code change modification to be granted by the AHJ.

In order to prevent more than one door in a control vestibule from being opened, each door is typically equipped with an electromagnetic lock and a door position switch. In conjunction with a controller in the power supply, 0pening one door will automatically activate the switch and energize the mag-locks on the other doors, locking them. When the first door closes, the switch signals the other doors to unlock and they can then be used to continue the access or egress path. These systems could also incorporate other types of fail safe locks, but mag-locks are the most common type for an interlock system.

To answer this month's Decoded question, once adopted, the 2027 I-Codes will permit control vestibules in the means of egress for purposes of security, environmental control, or clinical needs in the following use groups:

- Group F (factory industrial), H-3, H-4, H-5 (high hazard), I-1, I-2 (institutional) and S (storage) where the occupant load of the room or space served by the control vestibule is less than 50 people.
- Group B (business) and M (mercantile) where the occupant load of the room or space served by the control vestibule is 10 people or less.

There are other considerations when specifying, supplying, or installing an interlock that is part of the means of egress. If one door in the control vestibule fails to close, the other doors could restrict egress unless the newly-added safety requirements of the I-Codes are strictly followed.

A key safety component is the override switch that is required on the egress side of each door, and the accompanying instructional signage explaining to building occupants how the control vestibule will operate during an emergency. When the override switches are operated, power to the electrified locks must be directly interrupted – independent of the other electronics – and the locks must remain unlocked for at least 30 seconds. The switches must be located within 48 inches of the door and between 40 inches and 48 inches above the floor. The code includes an exception that permits the switches to be moved to alternate locations approved by the AHJ when the control vestibule is designed to impede occupant egress for security reasons.

The new section of the I-Codes will either require the room or space served by the control vestibule to have an approved automatic smoke detection system, or the building must be equipped throughout with an automatic sprinkler system. These areas could also have an emergency alarm system for hazardous materials. When these systems are activated, the interlock function of the doors serving the control vestibule must be deactivated automatically, allowing free egress through the vestibule. Power failure must also deactivate the interlock function of the doors, meaning that the electrified locks used in these systems must be fail safe.

The 2027 I-Code requirements mandate that building occupants must not pass through more than one control vestibule during the egress path from any point in the building. The IBC and IFC also state that the doors in a control vestibule must swing in the direction of egress (with an exception for power-operated doors in accordance with Section 1010.3.2), and doors must be equipped with self-closing devices. Self-closing is defined in the I-Codes as a door that is equipped with a device that will ensure closing after having been opened.

As with most other special locking arrangements, the new section requires the electrified hardware used in a control vestibule application to be listed to UL 294 – Standard for Access Control System Units or to UL 1034 – Standard for Safety for Burglary-Resistant Electric Locking Mechanisms.

Including the new requirements in the 2027 I-Codes will help to ensure a more consistent approach to these special locking arrangements. It's important to keep in mind that these requirements for interlocks do not apply until the 2027 edition of the IBC and/or IFC is adopted in a project's jurisdiction, or until the AHJ approves a code change modification based on the new section. The adopted codes should always be consulted, as they may have modifications that affect these applications.

# Decoded: Securing Parking Garages

By: Lori Green , I Dig Hardware Blog

A question about this topic came up in the Live With Lori session on access control doors, so I've made some updates to this article. You can access the recording and other resources from the live event on the Live page of iDigHardware...the next session is September 15th.

Without proper planning, parking garages can present security and life-safety challenges. People who are authorized to use the parking area – or unauthorized people who are able to enter an open parking garage – may attempt to gain access to other floors of the building.

Stair towers often extend from the lowest level of the parking garage to the highest level of the building. These stairwells are typically a required means of egress for the parking garage, but allowing free access to the stairwell could cause a security problem on upper floors that are not used for parking.

**Limiting Access and Egress**

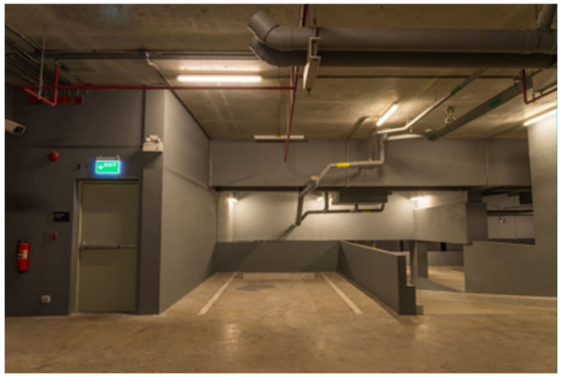
When trying to mitigate the security concerns, it may be tempting to prevent access to the stairs and force the use of elevators that control access to upper levels. However, if the stairwell is a required means of egress for the parking garage, occupants cannot be prevented from using the stairs for egress, although there are a couple of code-compliant security methods that might deter the use of the stairs. Locking the door with electrified hardware and ONLY unlocking it when the fire alarm is actuated IS NOT one of the acceptable methods.

The International Building Code (IBC) requires parking garages to meet the means of egress requirements of Chapter 10, where people other than parking attendants are permitted (if only parking attendants are permitted, there must be at least two exit stairways). Egress elements are based on a design occupant load of 1 person per 200 square feet (gross),

so the calculated occupant load is fairly low. If you have ever witnessed a car fire you might think that parking garages present a fairly high risk of fire, but because the amount of combustibles per square foot is relatively low, the IBC classifies a parking garage as a Group S-2 – low-hazard storage occupancy.

As with most egress doors, it's acceptable to install alarms and/or monitor switches on the parking garage exits. The switches can notify security personnel in the building or elsewhere that the door has been used. Cameras can monitor who has used the stairwell and what route they took after entering the stairwell. This option is code-compliant because it does not limit egress.

Delayed egress locks are another option, depending on whether all of the required code criteria are met – including a fire protection system. The International Building Code (IBC) does not limit the use of delayed egress locks on parking garages or other types of storage occupancies. Delayed egress locks will delay egress for 15 seconds (or 30 seconds when approved by the Authority Having Jurisdiction (AHJ)), and must sound a local alarm. These would act as deterrents, along with the signage required by the model codes. If some building occupants are authorized to use the parking garage stairwells, an access control reader can be used to shunt the delayed egress locks or the alarms to allow the use of the door.



**Operable Hardware**

Although panic hardware is often used on parking garages for convenience and the ability to withstand abuse, panic hardware is not typically required by the model codes for doors that serve parking areas. Panic hardware or fire exit hardware is required by the model codes for doors serving certain occupant loads in assembly and educational occupancies, as well as high hazard occupancies, but as I mentioned previously, parking garages are considered storage occupancies.

Doors in parking garages are typically required to meet the accessibility standards, so hardware must be operable with no tight grasping, pinching, or twisting of the wrist, and no key, tool, special knowledge or effort. One releasing operation must unlatch the door, and the releasing mechanism must be mounted between 34 inches and 48 inches above the floor (or as further limited by state codes). The hardware used on doors in parking garages may be exposed to atypical levels of humidity and other environmental changes, so this may affect product selection.

When a door in a parking garage is required to be a fire door assembly, the door must comply with the positive-latching requirements as well as all of the other criteria for a fire door. It is not uncommon for fire doors in parking garages to be propped open with wood wedges or more creative hold-opens, but it's important for these doors to be closed and

latched in order to protect the means of egress. The annual fire door assembly inspections required by NFPA 101 – The Life Safety Code, the International Fire Code (IFC), and NFPA 80 – Standard for Fire Doors and Other Opening Protectives, will help to ensure that fire doors in parking garages will perform properly if there is a fire. The IBC also requires these assemblies to be inspected after installation.

**Switching Gears**

When a parking-garage occupant enters a stairwell that leads to floors that need to be secured against unauthorized entry, those floors should be locked to prevent access from the stairwell. Fail-safe electrified locks are typically used to lock these doors on the stairwell side, in order to meet the stairwell reentry requirements. Although NFPA 101 allows mechanical locks in some circumstances, the IBC requires all stair doors to have the capability of being remotely unlocked by a switch at the fire command center or other approved location.

Using fail-safe electrified locks to lock stair doors on the stairwell side will help to ensure that if a fire does occur, building occupants can leave the stairwell on any level to find another exit or wait for assistance. Balancing security needs with code-compliant egress, operable hardware that meets the accessibility standards, and functional fire door assemblies will result in the required level of life safety for parking garage occupants while meeting the security needs of the facility.

# CSI is excited to announce the 2026 Class of CSI Fellows!

Fellows are selected by their peers based on their achievements in the industry and above-and-beyond contributions to CSI at the national, regional, and chapter levels. The distinction of Fellow is one of the highest honors given to a CSI member.

Here are the six new Fellows:

- Mary-Alice Avila, FCSI, CDT®
- Kristopher Benton, FCSI, CDT®
- Matthew Gregory, FCSI, Member Emeritus, CCS®, CDT®
- William "Chip" Hayward, FCSI, CCS®, CCCA®, CDT®
- Frank Mruk, FCSI
- Thomas Scarlata, FCSI, CCS®, CCCA®, CDT®

You can join the CSI community in honoring and celebrating these individuals at the upcoming 2026 CSI National Conference, October 7-9 in Phoenix, AZ.

# Decoded: Code Considerations for Nightclubs

By: Lori Greene, I Dig Hardware Blog

Despite changes to the code requirements related to nightclubs, tragedies continue to occur. This Decoded article covers some of the door-related considerations.


Historically, we have seen many tragedies that have taken place in nightclubs. Often a combination of factors such as locked or blocked egress routes, flammable acoustic foam or decorations, excessive occupant loads, and the use of pyrotechnics have led to a high loss of life. In this month's Decoded column I will answer the question:

***What are some door-related code requirements that can help to improve the safety of nightclubs and similar venues?***

**Occupant Load and Number of Exits**

Typically, these buildings would be considered assembly occupancies, as they are used for gatherings of 50 or more people for the purpose of eating, drinking, and entertainment. The calculated occupant load of a space is based on the area divided by an occupant load factor found in the code. For assembly occupancies without fixed seats, the International Building Code (IBC) lists the following occupant load factors:

- Concentrated (chairs only – not fixed) – 7 net square feet per person
- Standing space – 5 net square feet per person
- Unconcentrated (tables and chairs) – 15 net square feet per person

For example, if a nightclub is divided into an area of 1500 square feet with tables and chairs and 1000 square feet of dance floor that might be considered standing space, the calculation would be:

- Unconcentrated (tables and chairs): 1500 square feet / 15 square feet per person = 100 people
- Standing Space: 1000 square feet / 5 square feet per person = 200 people
- For a total calculated occupant load of 300 people

The number of occupants and the travel distance to each exit determine the number of exits that are required. For an assembly space without fixed seating and an occupant load of 50-500 people, at least two exits are required with a maximum common path of egress travel distance of 75 feet. These exits must be separated from each other by a distance of at least one-half of the maximum overall diagonal dimension of the area, or one-third of this dimension if the

building has an automatic sprinkler system. At least three exits or exit access doorways are required by the IBC when the occupant load is 501-1,000 people, and at least four exits are required when the occupant load exceeds 1,000 people. These exits must be arranged a reasonable distance apart, so that if one exit becomes blocked, other exits will be available for use.

If an assembly occupancy has a main exit and an occupant load of more than 300 people, the IBC includes additional requirements related to the exits:

***"A building, room or space used for assembly purposes that has an occupant load of greater than 300 and is provided with a main exit, that main exit shall be of sufficient capacity to accommodate not less than one-half of the occupant load, but such capacity shall be not less than the total required capacity of all means of egress leading to the exit. Where the building is classified as a Group A occupancy, the main exit shall front on not less than one street or an unoccupied space of not less than 10 feet (3048 mm) in width that adjoins a street or public way. In a building, room or space used for assembly purposes where there is not a well-defined main exit or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building provided that the total capacity of egress is not less than 100 percent of the required capacity."***

**Egress Capacity**

Egress doors must be of sufficient size to accommodate the occupant load. The required egress width of doorways is based on the occupant load served, multiplied by the egress capacity factor. For assembly occupancies, the IBC's egress capacity factor for doorways is 0.2 inches per occupant if the building does not have an automatic sprinkler system, and 0.15 inches per occupant if the building has a sprinkler system and an emergency voice/alarm communication system.

Doors in a means of egress must also meet the minimum requirements for clear opening size – typically a clear opening width of at least 32 inches is required for each door opening. This is measured with the door in the 90-degree open position, and for single doors, the measurement is taken from the face of the door to the stop on the strike jamb of the frame. For pairs of doors, the clear opening width is measured from the face of the open door to the edge of the other leaf in the closed position, or to the mullion.

With our nightclub example of 300 occupants, the total minimum clear opening width for the egress doors would be:

- Without a sprinkler system: 300 occupants x 0.2 inches/occupant = 60 inches of egress width
- With a sprinkler system and emergency voice/alarm communication system: 300 occupants x 0.15 inches/occupant = 45 inches of egress width

If the nightclub in our example has two egress doors, with each providing the minimum clear opening width of 32 inches required for egress and accessibility, the resulting 64 inches of egress width would accommodate the 300 occupants (with a little room to spare).

**Operation of Egress Doors**

Egress doors serving an assembly occupancy like a nightclub must be visible, identifiable as doors, and usable by building occupants. Doors must unlatch for egress with one releasing motion, without the use of a key, tool, special knowledge or effort. Exits may not be disguised by curtains, mirrors, or decorations – they must be readily identifiable as doors.

When an egress door serves an assembly space with an occupant load of 50 people or more, the IBC states that the door may only be equipped with a lock or latch if it is panic hardware. There are a couple of exceptions to this rule that allow key-operated deadbolts on the main entrance to a building or tenant space or on a door serving an exterior area where the egress path passes through the interior of the building. For both of these applications the code includes additional requirements.

Most doors must also comply with the accessibility mandates, some of which are included in both the accessibility standards and the model codes. For example, the releasing hardware to unlatch the door must be mounted between 34 inches and 48 inches above the floor, or as further limited by local codes. The hardware must be operable without tight grasping, pinching, or twisting of the wrist, and within the allowable force limitations – this is dependent upon which accessibility standards apply in a particular jurisdiction. There are additional requirements related to opening force, closing speed, clear opening size, threshold height, and door design.

Some doors in nightclubs may be fire door assemblies, designed to deter the passage of smoke and flames to compartmentalize the building and protect the means of egress. These doors must be closed and latched at the time of a fire, and can not be propped open with hooks, wedges, or other mechanical means. NFPA 80 – Standard for Fire Doors and Other Opening Protectives includes detailed requirements for fire door assemblies including limitations on clearance, power door operation, automatic closing devices, hinge details, and more.

Electrified hardware has become much more common in recent decades, and an electrified access control system could be found in a nightclub. If the access control system is one that allows free egress via mechanical use of the door hardware, it is generally acceptable per the model codes as long as the door can be readily opened from the egress side. Other types of electrified hardware systems are considered special locking arrangements, and the adopted codes include sections specific to each type of system. Although a business owner may want to limit egress for security reasons, the model codes require these exits to permit free and immediate egress.

There are many other considerations that may affect the safety of nightclub occupants, but these are the main concerns related to doors. For more information, refer to the codes that have been adopted in the jurisdiction of the building.

# Latching of Corridor Doors in Health Care

By: Lori Greene, I Dig Hardware Blog


Note that when a "corridor door" in a health care facility is addressed in the model codes, it is typically a door entering a patient room, surgical area, exam room, suite, etc. The requirements are different for cross-corridor doors in health care smoke barriers.

I've been asked this Quick Question before, usually when a fire door inspector is on-site or when the top latches have become detached:

I received a question recently that has a two-part answer. One of the parts is pretty easy/obvious but is something that is important for anyone who works in health care to keep in mind. The second part gets into the weeds but is a good opportunity for a code change proposal (it's on my wish list!).

The code typically referenced for egress throughout the life of a health care facility is NFPA 101 – Life Safety Code, as this is the code that is adopted by CMS – Centers for Medicare and Medicaid Services. This code is enforced by the Joint Commission and other accrediting organizations. The edition that is currently in use is the 2012 edition. Hopefully a newer edition will be adopted soon but no date has been set as far as I know.

The question in this case was related to operating room doors with fire exit hardware on both leaves. The Authority Having Jurisdiction (AHJ) had stated that one leaf of the pair needed automatic flush bolts (instead of the fire exit hardware) in order to comply with the code. Anyone who has worked with pairs of doors can attest that a pair of doors with panic hardware or fire exit hardware is more dependable and easier to maintain than a pair with latching hardware on one leaf and automatic flush bolts on the other (and the required coordinator). The doors in question also had automatic operators, further complicating the situation.

**Part 1:** It is true that for corridor doors in health care, both leaves need positive-latching hardware, and automatic flush bolts are referenced in the health care sections of NFPA 101. BUT…my interpretation is that the requirement for automatic flush bolts only applies if the pair has an inactive leaf, and would not apply to a pair of doors with panic hardware, as both leaves are active. The panic hardware or fire exit hardware on each leaf provides the required positive latching function. Note: For non-fire-rated corridor doors that require positive latching, I would specify panic hardware "less dogging" (LD), so the panics can't be dogged in the unlatched position.

Here are the applicable sections from the 2012 edition of NFPA 101, which are also included in the 2024 edition:

- *18.3.6.3.5 Doors shall be self-latching and provided with positive latching hardware.*
- *18.3.6.3.8 (.9 in 2024 edition) Corridor doors utilizing an inactive leaf shall have automatic flush bolts on the inactive leaf to provide positive latching.*

The NFPA 101 Handbook includes a little extra information that helps to demonstrate that two panic devices (less dogging) would comply with the intent:

***Paragraph 18.3.6.3.5 requires that doors in corridor walls in new health care occupancies be self-latching and that the latch provide positive latching. The purpose is to ensure that doors, once closed by staff, will latch against the frame automatically, without staff having to set such latch, and, once latched, remain closed until a deliberate unlatching action is initiated, such as turning a lever handle. Roller latches are not permitted in new health care occupancies, except in acute psychiatric settings where patient needs***

***Paragraph 18.3.6.3.8 requires that new corridor doors utilizing an inactive leaf be provided with automatic flush bolts on the inactive leaf so that positive latching is provided without staff having to throw a manual flush bolt, ensuring that the door stays closed.***

**Part 2:** The pairs of doors on this project had 3-foot-wide door leaves. There is a requirement in NFPA 101 (and the I-Codes) for a minimum clear opening width of 41 1/2 inches on door openings in health care facilities that are used for the movement of beds. For NFPA 101 this applies to sleeping rooms, diagnostic and treatment areas (x-ray, surgery, or physical therapy), and nursery rooms.

A pair of 3-foot doors would not provide the required clear opening width for the movement of beds, but there are some exceptions to this requirement…Exception 4 is the one that is related to today's post:

***18.2.3.7 The requirements of 18.2.3.6 shall not apply where otherwise permitted by one of the following:***
***(1) Doors that are located so as not to be subject to use by any health care occupant shall be not less than 32 in. (810 mm) in clear width.***
***(2) Doors in exit stair enclosures shall be not less than 32 in. (810 mm) in clear width.***
***(3) Doors serving newborn nurseries shall be not less than 32 in. (810 mm) in clear width.***

***(4) Where a pair of doors is provided, all of the following criteria shall be met:***

***(a) Not less than one of the doors shall provide not less than a 32 in. (810 mm) clear width opening.***
***(b) A rabbet, bevel, or astragal shall be provided at the meeting edge.***
***(c) The inactive door leaf shall have an automatic flush bolt to provide positive latching.***

Exception 4 would permit a pair of 3-foot doors if all of the required criteria were met. In Item 4(c), the wording related to the inactive leaf is slightly different from the previously-referenced section but raised a question on this project. In my opinion, the reference to an inactive leaf means that this wouldn't apply to doors with panic hardware on both leaves. With that said, it creates enough doubt that I think we need a code change proposal to understand the intent completely and potentially change the code to be more specific.

CSI®

LITTLE ROCK CHAPTER

# LITTLE ROCK CHAPTER INFORMATION

## Chapter Officers

| | |
|---|---|
| President: | Billy J. Mathis, FCSI, CDT |
| President-Elect: | Mindy Burton, CSI, CDT |
| Immediate Past President: | Open |
| Secretary: | Carrie J. Gray, CSI, CDT |
| Treasurer: | Jerome Sorenson, CSI |
| Directors | |
| Operations | Mindy Burton, CSI, CDT |
| Honors | Billy J. Mathis, FCSI, CDT |
| Membership | Jerome Sorenson, CSI |
| Education / Certification | Carrie J. Gray, CSI, CDT |

## Chapter Info

**Chapter Website:** https://csilittlerock.org

**Chapter Newsletter:** https://csilittlerock.org and Click on the Current Newsletter Tab

**Chapter Meeting Day and Time:** As Determined by the Chapter Board of Directors and based on availability of the presenters.

**Chapter Board Meeting Day and Time:** As determined by the Chapter President

**For Membership Information:** https://www.csiresources.org/communities/membership/individual-membership

**To Join CSI:** https://higherlogicdownload.s3.amazonaws.com/CSIRESOURCES/143a718d-6df6-484a-8a79-76d79635b741/UploadedImages/PDFs/CSI_MembershipFormFY18.pdf

**To See what CSI is all about**: https://higherlogicdownload.s3.amazonaws.com/CSIRESOURCES/143a718d-6df6-484a-8a79-76d79635b741/UploadedImages/CSI_ResourcesCatalogFinalLowRes.pdf