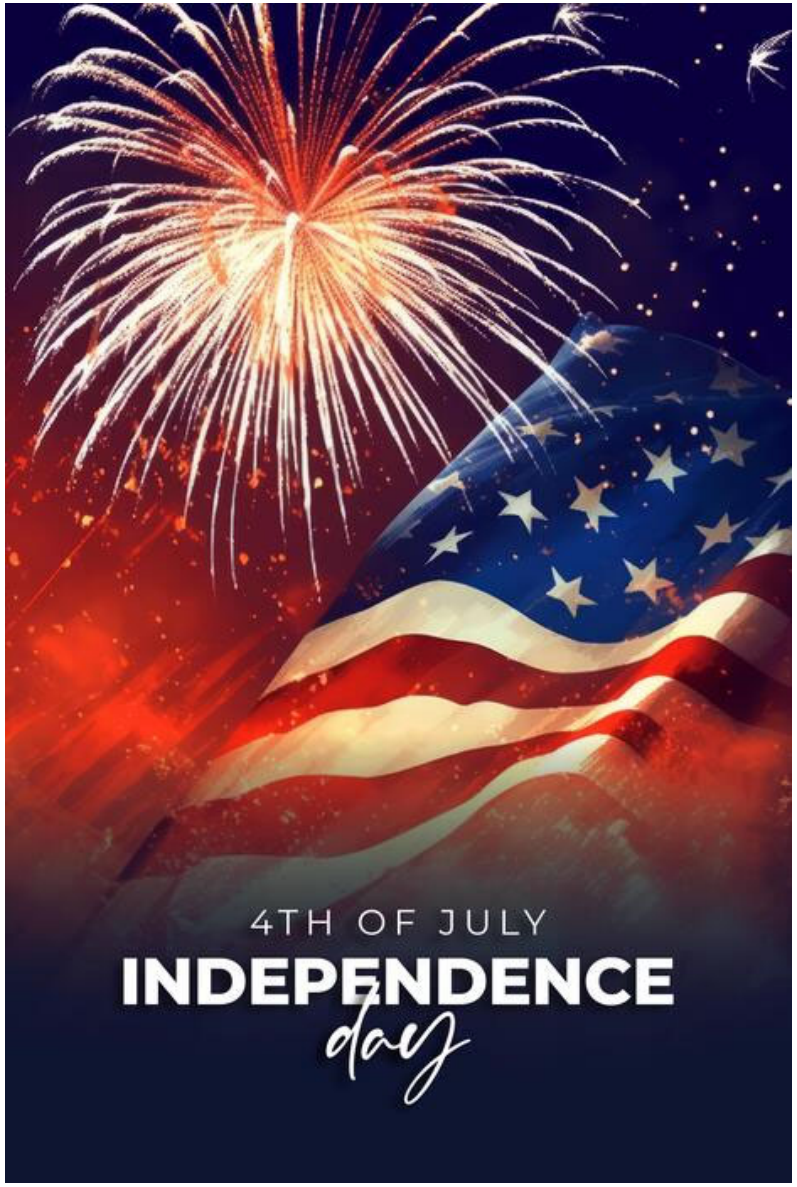
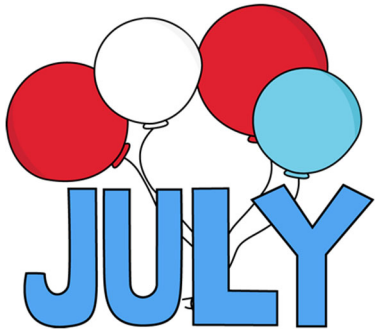
SPECWORK

CSI® LITTLE ROCK CHAPTER

Little Rock Chapter - Chartered November 1965 July - August 2026





In This Issue

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President's Thoughts

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

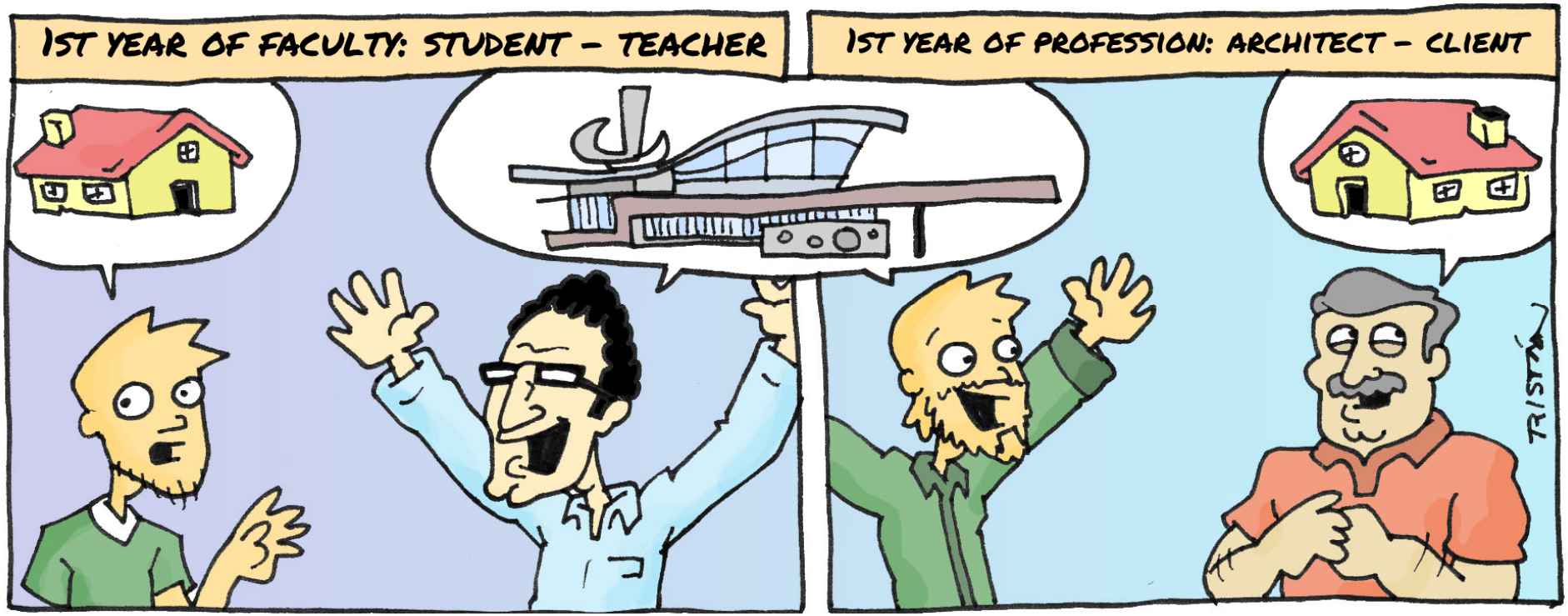
There are many things I could say that describe my experience as a member of CSI, but some things cannot be expressed in precise language. I could talk about the available Certifications, CDT, CCS, CCPR and CCCA. All of these provide people with training in various topics that are both the same with 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.


1ST YEAR OF FACULTY: STUDENT – TEACHER
1ST YEAR OF PROFESSION: ARCHITECT – CLIENT
TRISTAN


"STAND BACK – MAKE ONE MORE UNREASONABLE DEADLINE AND I'LL EXPLODE THE DIMENSIONS!"

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! We're hoping to have these roles filled by July 15, 2026.

Your Chapter needs your help. As you read this article, we are fast approaching the time when the Chapter needs to begin preparations for hosting the 2027 Gulf States Region Conference. This event requires the involvement of multiple people from the Chapter in various roles. We need the following:

- **A Chairperson**. Mindy Burton has graciously volunteered to take on this role. We need a full staff of volunteers to assist her.
- **Executive Team**. This team will be responsible for coordinating with the Hotel for rooms, parking, meals, snacks, etc. The chair of this team will be the primary point of contact with the Hotel for all matters.
- **Advertisement Team**. This team is responsible for producing the brochures, registration documents, sponsorship documents, and getting those documents into the hands of the people.
- **Registration Team**. Carrie Gray has taken on the role as Chairperson for this team, but she still needs other volunteers. These people have the responsibility to coordinate and manage the registration process from the time we open registration to after the last day of the Conference. This includes manning the registration table during the conference.
- **Itinerary Team**. This team will coordinate all speakers, all training sessions, and the Key Not Speaker. They are responsible for making sure that the rooms are setup appropriately with the AV equipment needed and that the sessions all go according to schedule.
- **Sponsorship Team**. This team is perhaps one of the most important teams to the whole process. Without Sponsors, no chapter could afford to host the conference. Also, Sponsors are paramount to the industry as a whole and deserve to be in the forefront of the event.
- **Hospitality Room Host**. This person or persons will be responsible for the Hospitality room including the beverages, shacks, open and closing times, managing the activities in the room and making sure that we have no issues.

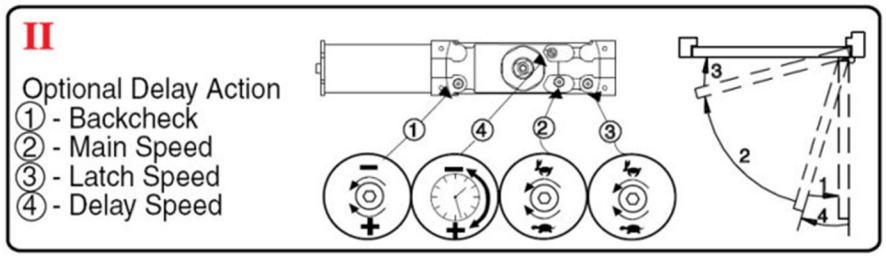
As you can see, we need a group of people, all dedicated to pulling this off. Our goal is to have a Conference that fulfills all the requirements as set forth from the Region Board, to be fiscally responsible to both the people attending and the Chapter. Our goal is to break even at the end of the conference and when all bills are settled. If this sound like something you might like to help with, please contact myself (Billy J. Mathis, FCSI, CDT at bjmathis@taggarch.com or Mindy Burton, CSI, CDT at mburton@cromwell.com.

Quick Question: Closing Speed & Delayed Action

By: Lori Greene, I Dig Hardware Blog

Is a delayed-action door closer required by the accessibility standards?

Back in the early 1990's when the ADA became a focus of the door and hardware industry, delayed-action closers were often specified and installed due to the assumption that they were required by the accessibility standards. Delayed action is a feature available on many door closers, which delays the closing cycle for up to a minute (or more depending on the manufacturer) from the maximum degree of opening to approximately 70 degrees. The delay is controlled by an additional valve that slows the flow of fluid for that initial period in the closing cycle. This feature can be helpful in some applications, but it is not required by the model codes or referenced standards. The other segments of the closing cycle, the main speed and the latch speed, are also controlled by valves (see diagram below).



The accessibility standards used in most US states are ICC A117.1 – Accessible and Usable Buildings and Facilities, and the ADA Standards for Accessible Design. These standards establish a minimum closing time so that the door closes slowly, but they do not require a delay before the closing cycle begins. If a door is equipped with a door closer, the minimum closing time is 5 seconds from the 90-degree open position to 12 degrees from the closed position. For doors with spring hinges, the closing time required by the standards is 1.5 seconds from the 70-degree open position to the closed position; this increased speed/lack of control may make a door difficult for some users to maneuver through. Note that state or local requirements may vary so it's important to reference the adopted code or standard.

A delayed-action closer may be useful for some interior doors, but the decision to specify/supply this feature must be carefully considered. The assistance provided by the delay for some users may cause confusion for others. In many cases, having a door stand open for a minute will be a real inconvenience, and I've seen people attempt to manually close the door behind them. I typically reserve the use of delayed-action closers to fire-rated storage rooms, and certain doors in health care facilities, like tub rooms. When this feature is supplied where it is not needed and maintenance staff learns that they can disable the delay, money has been spent for a feature that will never be used.

A related question is whether a delayed-action closer is acceptable for use on fire doors. Prior to the 2018 edition of the International Building Code (IBC), this was not specifically addressed in the code, but it was clarified in the 2018 edition with this paragraph:
716.2.6.5 Delayed-action closers. Doors required to be self-closing and not required to be automatic closing shall be permitted to be equipped with delayed-action closers.

This text is found in Section 716 – Opening Protectives, which means that delayed-action closers are permitted to be used on fire door assemblies. Note that this added section does not include a specific limit on the amount of time that the closing cycle can be delayed.

For reference, here are the applicable closing speed excerpts from each of the accessibility standards:

ICC/ANSI A117.1 – 2017:

- *404.2.7 Closing speed. Door and gate closing speed shall comply with 404.2.7.*
- *404.2.7.1 Door and gate closers. Door and gate closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door or gate to an open position of 12 degrees shall be 5 seconds minimum.*
- *404.2.7.2 Spring hinges. Door and gate spring hinges shall be adjusted so that from an open position of 70 degrees, the door or gate shall move to the closed position in 1.5 seconds minimum.*

2010 ADA/ABA Standards:

- *404.2.8 Closing Speed. Door and gate closing speed shall comply with 404.2.8.*
- *404.2.8.1 Door Closers and Gate Closers. Door closers and gate closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.*
- *404.2.8.2 Spring Hinges. Door and gate spring hinges shall be adjusted so that from the open position of 70 degrees, the door or gate shall move to the closed position in 1.5 seconds minimum.*

Quick Question: IBC/BHMA “Power Assist” vs. LCN “Power Assist”

By: Lori Greene, I Dig Hardware Blog

Today’s Quick Question is a great opportunity to explain the concept of “power assist” with regard to automatic operators:

For accessible public entrances serving certain buildings, the International Building Code (IBC) requires either a power-operated door or a low-energy power operated door; power-assist operators are not listed in the IBC as a permitted operator type. I see that LCN offers a power assist feature on some of their automatic operators, can these operators be used on doors serving accessible public entrances?

The short answer – YES! LCN operators can be used on accessible public entrances. The confusion stems from the use of the same term – “power assist” – with two slightly different meanings.

In the BHMA and IBC definitions, along with the supporting description from the IBC Commentary, a power-assist door is one that is opened manually, but with reduced force. The key is that these doors are opened manually (not automatically), which is why a power-assist operator is not listed in the IBC as one of the types that may be used on accessible public entrances. Where required based on the occupancy type and occupant load, one door or one set of doors must open automatically (not manually).

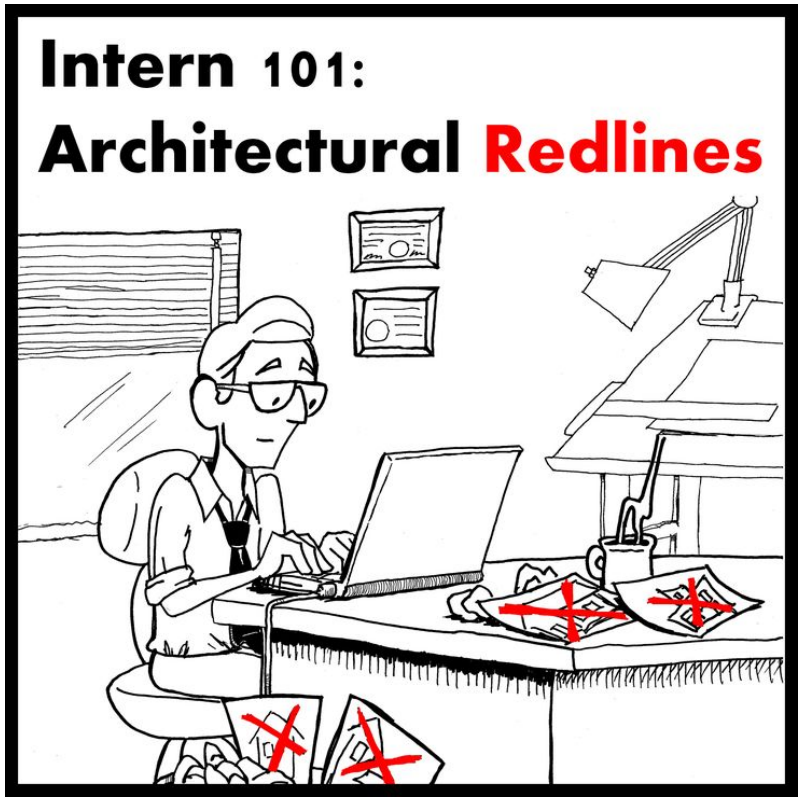
- *BHMA A156.19: Power Assist Door. A manual door with a power mechanism that activates by pushing or pulling the door, reducing the opening resistance of a self-closing door to allow easier manual opening of the door. If the opening force on the door is released, the door shall come to a stop and either immediately begin to close, or begin to close after a predetermined time.*
- *IBC: Power-assisted door. Swinging door which opens by reduced pushing or pulling force on the door-operating hardware. The door closes automatically after the pushing or pulling force is released and functions with decreased forces. See “Low-energy power-operated door” and “Power-operated door.”*
- *IBC Commentary: Least common are power-assisted doors, which are required to comply with BHMA A156.19. These doors are swinging doors that open by reduced pushing or pulling force on the door-operating hardware, close automatically after the pushing or pulling force is released, and function with decreased forces. Power-assisted doors do not open automatically—the operators only reduce the opening force for easier manual operation.*

The difference in the power-assist operators described above and the LCN power assist feature is that LCN operators DO open the door automatically AND the power assist feature helps to reduce the opening force when a user opens the door manually. These operators do BOTH – they are low energy automatic operators with the added power assist feature, so they open the door automatically AND reduce the manual opening force.

From the Allegion Knowledge Center:

The LCN Sr Swing IQ operators have a power assist feature available in the control box programming. When turned on, the operator will assist with manual door opening. The door will feel lighter by reducing the opening resistance of the motor gearbox.

The two very similar but slightly different uses of "power-assist" may be a little confusing, but once it's explained, it's a really nice perk to have that feature on LCN auto operators in addition to the fully-automatic function. This provides more application flexibility to cover your bases and accommodate all users, all with one operator.



Decoded: Actuators for Low Energy Operators

By: Lori Greene, I Dig Hardware Blog

Last week I posted a photo of an actuator in the wild, and I received several questions about the required actuator location. Time to update this past Decoded article!

From a code and standard perspective, there are three basic types of automatic operators for swinging doors – Power Assist, Low Energy Power Operated, and Power Operated Pedestrian Doors – also known as Full Power Operated Doors.

Power assist operators reduce the opening force so the door can be manually opened more easily, but if they are strictly power assist (and not a combination power assist/low energy), they do not completely open the door without force applied manually. These operators are usually activated by pushing or pulling the door, although occasionally a wall-mounted actuator is used to reduce the force only for users who need that feature.

Low energy operators are often used when the door will be opened manually by some users and automatically by others. The doors are subject to limitations on opening speed and force, to limit the generation of kinetic energy and the potential for injury, and they must be operated by a "knowing act" (read on). Because of these limits, most doors with low energy operators are not required to have safety sensors, control mats, or guide rails.

Full power operators are typically found on high-use openings like the entrance to a grocery store or department store. They are not subject to the same restrictions on speed and force, and require safety sensors or control mats and guide rails to prevent the doors from opening if someone is in the path of the door swing.

ANSI/BHMA A156.19 – Power Assist & Low Energy Power Operated Doors is the standard that applies to power assist and low energy operators; ANSI/BHMA A156.10 – Standard for Power Operated Pedestrian Doors covers full power operators. Both of these standards are referenced by the International Building Code, NFPA 101 – Life Safety Code, and other publications, so most of the detailed requirements are found in these standards rather than within the codes. As a referenced standard the requirements effectively become part of the code where they are referenced.

The 2007 edition of ANSI/BHMA A156.19 introduced a requirement for power assist and low energy power operated doors to be activated by a "knowing act." The knowing act method may be a push plate actuator or non-contact switch mounted on the wall or jamb, the act of manually pushing or pulling a door, or an access control device like a card reader, keypad, or keyswitch.

In the 2019 edition of the standard, the definition was modified slightly, and wireless transmitters were added as another example

Knowing Act: Any conscious action with the expected result of opening a door. This includes but is not limited to: wall or jamb-mounted contact or non-contact switches such as push plates; the action of manual opening (pushing or pulling) a door; and controlled access devices such as keypads, card readers, wireless transmitters and keyswitches.

Prior to the 2019 edition, the standard also made recommendations regarding the mounting location of a knowing act switch including the following:

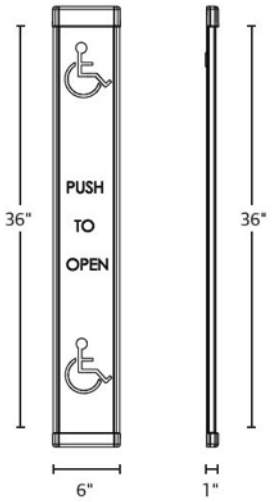
- mounted within one to five feet from the door but not more than twelve feet
- accessible from the swing side when the door is open
- not in a location where the user would be in the path of the moving door
- mounted so the user can see the door when activating the switch
- an installation height of 34 inches minimum and 48 inches maximum above the floor

In the 2019 edition of A156.19, the switch location became a requirement instead of a recommendation, and the location was modified slightly. The knowing-act switch:

- shall be installed within view of the door
- shall be installed between 34 inches and 48 inches above the floor, or as required by the local building codes
- shall remain accessible from the swing side of the door when it is opened
- shall not be located in a position where the user would be in the path of the moving door
- shall require the operator to have an additional time delay of 2 seconds per additional foot of distance from the door if the switch is located more than 7 feet from the center of the door

The 2010 ADA Standards for Accessible Design and ICC A117.1 – Accessible and Usable Buildings and Facilities also contain requirements pertaining to the actuators for automatic doors. Clear floor space for a wheelchair must be provided adjacent to the actuator, and beyond the arc of the door swing. The mounting height is variable, depending on the reach range associated with the location of the switch, but the range recommended by the ANSI/BHMA standards is acceptable for most applications. Actuators must not require tight grasping, pinching, or twisting of the wrist to operate, and the operating force is limited to 5 pounds maximum.

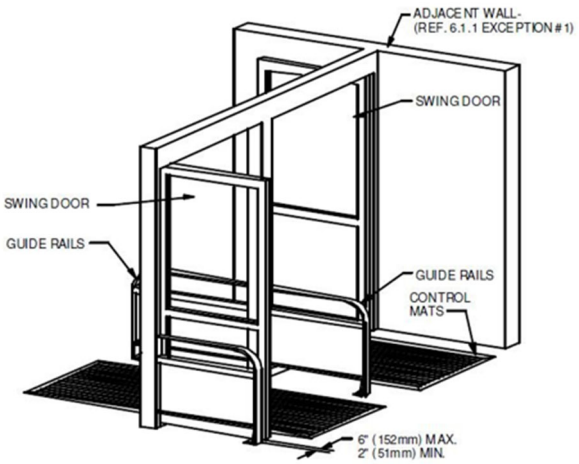
Stepping into the field of a motion sensor is not considered a knowing act. If automatic operation via a motion sensor is desired, automatic doors must comply with the standard for full power operators – ANSI/BHMA A156.10, instead of A156.19. This means that even though the door may have a low energy or power assist operator, it has to meet the same requirements as a full power operator, including the safety sensors or control mats and guide rails. Guide rails are required on the swing side of each door and are typically 30 inches high. For some locations, the need for guide rails may mean that motion sensor operation is not feasible. If certain criteria are met, walls may be used in place of guide rails. When doors are installed across a corridor, guide rails are not required if the distance between the wall and the door in the 90 degree open position does not exceed 10 inches.



The California Building Code requires two push plate actuators at each actuator location – one mounted between 7 and 8 inches from the floor to the centerline, and the other mounted between 30 inches and 44 inches above the floor. Vertical actuation bars may be used in lieu of two separate actuators, with the bottom of the bar at 5 inches maximum above the floor and the top at 35 inches minimum above the floor. Actuators must be in a conspicuous location, with a level and clear ground space outside of the door swing. The minimum size for push plates is 4 inches, and the minimum operable portion for vertical actuation bars is 2 inches wide. Both types of actuators must display the International Symbol of Accessibility.

While all of these requirements have the same basic intent, it's best to check your state and local code requirements to see which standard has been adopted, and what the specifics are in reference to actuators for automatic operators. Verify the actuator type/quantity, location, and any additional requirements. And keep in mind that additional safety features, including sensors and guide rails, may be required for low energy operators actuated by a motion sensor.

From ANSI/BHMA A156.10, an automatic swinging door equipped with guide rails and control mats.



From ANSI/BHMA A156.10, an automatic swinging door equipped with guide rails and control mats.

"I'm starting to think our math might be off."

Decoded: Dead Bolt Mounting Height

Posted by Lori Greene, I Dig Hardware Blog

The model codes and accessibility standards require operable parts of door hardware to be within the allowable range of 34 inches to 48 inches above

I've been talking about this month's Decoded question for a while now...maybe seeing it in print will help get some traction. What do you think about this issue?

This month's Decoded question illustrates a problem that I've been hearing about in the field for a few years now:

On a recent multifamily residential project, the accessibility inspector rejected the dead bolts because of the mounting height. How can I avoid this problem in the future?

Prior to the adoption of the ADA Standards for Accessible Design and ICC A117.1, Accessible and Usable Buildings and Facilities, the standard mounting height for deadbolts was 60 inches measured from the bottom of the strike jamb on the frame to the centerline of the strike. This industry standard was changed decades ago because of the accessibility standards.

The ADA Standards currently state:

404.2.7 Door and Gate Hardware. Handles, pulls, latches, locks, and other operable parts on doors and gates shall comply with 309.4. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the finish floor or ground. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

Mounting a deadbolt at the industry standard mounting height of 48 inches above the floor may result in operable parts outside of the

The standards include exceptions for some types of existing doors and also for doors and gates serving swimming pools. The model codes such as the International Building Code (IBC), International Fire Code (IFC), and NFPA 101, Life Safety Code, contain the same mounting height limitations as the accessibility standards; releasing hardware used to unlatch the door must be mounted between 34 inches and 48 inches above the floor. Some state codes further limit the acceptable mounting height range.

The current industry standard location for dead bolts is 48 inches measured from the bottom of the frame to the centerline of the dead bolt strike. The problem with this location is that depending on the dead bolt, it's very likely that some or all of the operable parts of the lock will fall above the limit of 48 inches

Operable parts are defined by the ADA Standards as: *A component of an element used to insert or withdraw objects, or to activate, deactivate, or adjust the element*. An element is defined as: *An architectural or mechanical component of a building, facility, space, or site*. When it comes to releasing hardware, doorways would be considered elements, and the lever handles, touchpads, thumbturns, keypads, and other components used to operate the hardware are operable parts.

The ADA does include some exceptions where operable parts do not have to comply with the requirements of the standard, but they would not apply to the example used in this article's Decoded question. Some examples include operable parts for use only by service or maintenance personnel, various exceptions related to electrical or communication receptacles and HVAC diffusers, cleats and other boat securement devices, and exercise equipment.

Considering that the mounting height limitations of the model codes and standards apply to most dead bolts, and the operable parts of those dead bolts may be above the the centerline of the lock/strike, the issue is clear. This is especially common when a deadbolt has a keypad or reader, as those components are typically in the top portion of the lock. In checking dead bolt templates and standard locations for various manufacturers, it seems like the 48-inch mounting height to the lock centerline is still the most common location.

Note that mounting height problems may also occur with hospital latches, which are often mounted higher than a standard lever handle for the convenience of the users. Depending on whether the paddles are mounted facing up, down, or sideways, they may or may not fall within the required range of 34 inches to 48 inches above the floor.

Until the standard locations are adjusted, it is up to the specification writers, hardware distributors, locksmiths, and other industry professionals to verify that all hardware is mounted at a compliant height, ensuring that the operable parts fall within the allowable range. With that said, lowering the deadbolt could create conflicts with other lock preps, so care must be taken to avoid warranty and listing issues.

Decoded: Delayed Egress Locks

By: Lori Green , I Dig Hardware Blog

One of the many code requirements for doors with delayed egress locks is the mandated signage to instruct building occupants how to use the doors.

My next Decoded article looks at the delayed egress requirements of both sets of model codes – there are some important variations to be aware of.

When considering building security and deterring the unauthorized use of doors, we must balance security and life safety for the required means of egress and any doors provided for egress purposes. Model building codes generally require that egress doors permit occupants to exit with a single releasing motion, without a key, tool, or special knowledge or effort. Yet the code requirements for some specific hardware applications, such as delayed egress locks, provide exceptions to ordinary egress requirements.

During unauthorized attempts to exit, delayed egress locks permit an exit delay of 15 seconds, and up to 30 seconds with approval from the Authority Having Jurisdiction (AHJ). Crucially, these locks must allow immediate egress during emergencies, such as during a fire alarm activation. Typical settings for delayed egress locking systems include retail stores, business occupancies requiring extra security, and high-security environments like airports; however, for airport terminals (classified as assembly occupancies), AHJ approval is typically needed.

A delayed egress system may consist of panic hardware or fire exit hardware with a delayed egress function, electromagnetic locks with integrated delayed egress capability, or other electrified locks paired with delayed egress controllers. Regardless of the configuration, model codes provide stringent requirements and operational limits to prioritize occupant safety.

As always, it's crucial to refer to the adopted code when specifying or supplying an electrified hardware system, as the model codes may vary from one edition to the next, and local codes may include state-specific modifications. This article will compare the mandates of the I-Codes – the International Building Code (IBC) and International Fire Code (IFC), with those of the NFPA codes such as NFPA 1 – Fire Code, NFPA 5000 – Building Construction and Safety Code, and NFPA 101 – Life Safety Code.

Use Groups and Occupancy Classifications

I-Codes: Delayed egress locks have long been allowed in most use groups, but were restricted in Group A (assembly), E (educational), and H (high hazard) occupancies. Beginning with the 2018 editions of the I-Codes, delayed egress locks may be used in two specific assembly and educational occupancies. On secondary exits for courtrooms (typically assembly occupancies), delayed egress locks are now permitted if the building has a sprinkler system. The 2018 edition and subsequent editions also permit delayed egress locks on classroom doors in educational occupancies if the door is serving a calculated occupant load of less than 50 people. This gives schools new options to deter elopement and protect students with special needs or young children.

NFPA: These codes typically permit delayed egress locks in spaces with low or ordinary hazard contents, while prohibiting them on the main entrances/exits of assembly occupancies and jetway doors for airports. Residential limitations include just one delayed egress device per escape route in lodging or rooming houses and a restriction to exterior doors in residential board and care facilities.

Required Fire Protection Systems

I-Codes & NFPA: Both the I-Codes and the NFPA codes require buildings with delayed egress hardware to be equipped throughout with an automatic sprinkler system or approved automatic smoke or heat detection system. Either type of system is permitted, although the courtrooms addressed by the 2018 change are specifically required to have a sprinkler system. This requirement also applies to some institutional occupancies where two delayed egress doors are part of one egress route.

The delay timer may be initiated by a force applied to the delayed egress lock (ex. panic hardware), or by movement of the door which is one way that a delayed egress electromagnetic lock may be activated.

Activation and Release Timing

I-Codes & NFPA: Under current codes, delayed egress locks must start their timed delay when a force of 15 pounds, maximum, is applied for up to 3 seconds. The activation time to initiate the 15- or 30-second delay may be less than 3 seconds, but it may not exceed 3 seconds. Prior to the 2015 edition of the IBC, the timer was required to begin after a 1-second attempt to exit.

Automatic Release Delay

I-Codes & NFPA: When the timer is activated by applying force during an attempt to exit, the model codes require the delayed egress lock to release and allow egress after 15 seconds; the AHJ may approve a time delay of 30 seconds. After the approved time period expires, the door will be unlocked in the direction of egress, and another attempt to exit will allow the door to be opened immediately.

Rearming After Activation

I-Codes & NFPA: When a delayed egress lock timer is activated and the lock allows egress after 15 (or 30) seconds, the model codes state that the lock must be manually rearmed. Prior to the year 2000, some codes permitted the locks to re-lock automatically after the opening and closing sequence of the door, but current codes do not allow this. Manually rearming the lock allows security personnel to investigate what triggered the lock activation and to verify that it is safe to rearm the lock delay.

Audible Alarm

I-Codes & NFPA: Both the I-Codes and the NFPA codes require an audible alarm to sound locally upon activation of the delayed egress lock, but the codes are not prescriptive about the type of alarm that is required. Some products incorporate a continuous alarm while others have an intermittent sound or even a verbal countdown.

Instructional Signage

I-Codes: With the exception of certain types of treatment areas in Group I institutional occupancies (where permitted by the AHJ), doors with delayed egress locks must have signage stating: "PUSH [PULL] UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS." The signs must be mounted above and within 12 inches of the door exit hardware and current editions of the I-Codes require signage to comply with the visual character requirements of ICC A117.1 – Accessible and Usable Buildings and Facilities.

NFPA: The same language is required for the instructional signage: "PUSH [PULL] UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS." Signage must be located on the egress side of the door, adjacent to the release device, and must be readily visible, durable, with letters not less than 1-inch high and 1/8-inch stroke with a contrasting background.

Fire Alarm and Sprinkler System Activation

I-Codes: Delayed egress locks must automatically allow immediate egress when the fire alarm or sprinkler system is activated. This ensures that building occupants can exit quickly during a fire.

NFPA: The NFPA codes are more specific regarding the types of system activation that must unlock the delayed egress locks for egress. These doors must unlock with no delay in the direction of egress upon activation of sprinkler system, or not more than one heat detector, or not more than two smoke detectors.

Power Failure Provisions

I-Codes & NFPA: Delayed egress systems must unlock upon power loss, as stipulated by both the I-Codes and NFPA. Whether battery backup is compliant is not directly addressed; AHJs may be asked to interpret whether this is permitted. Industry best practice—particularly referencing NFPA 72—advises against independent battery backup solely for locking devices. Ideally, delayed egress locks and fire alarm systems share a common standby power source to ensure reliable coordination and release of the delayed egress lock upon fire alarm/sprinkler system activation.

Remote Release Capabilities

I-Codes: The I-Codes require delayed egress locks to be capable of being deactivated by a switch at the fire command center and/or other approved location(s), to allow immediate egress in an emergency.

NFPA: In the section of the Life Safety Code that addresses delayed egress locks, remote release is not mandated.

Emergency Lighting

I-Codes & NFPA: Emergency lighting on the egress side of a delayed egress-equipped door is mandatory in both sets of model codes. Verifying proper emergency illumination is critical prior to installation.

Quantity of Delayed Egress Locks Per Egress Path

I-Codes: Recent IBC/IFC editions allow only one delayed egress lock along any given egress path in most use groups. In Group I – institutional occupancies (ex. hospitals, nursing homes, day care facilities) two doors with delayed egress locks are now permitted per egress path, with a maximum combined delay of 30 seconds. In Group I-1, Condition 1 and Group I-4, the exception permitting two doors with delayed egress locks mandates that the building is equipped throughout with a sprinkler system.

NFPA: In contrast, for most occupancy classifications, the NFPA codes do not restrict the number of delayed egress locks per egress path. Only in lodging or rooming houses does the Life Safety Code limit delayed egress locks to one device per escape path.

Listing and Labeling Requirements

I-Codes & NFPA: Both sets of model codes require delayed egress locking systems to be listed to UL 294 – Standard for Access Control System Units. Beginning with the 2024 editions of the codes, these systems may be listed to UL 1034 – Standard for Safety for Burglary-Resistant Electric Locking Mechanisms as an alternative to UL 294. Other listings may also be required. For example, if a delayed egress lock will be installed on a fire door assembly, the assembly must also

The 2010 ADA Standards for Accessible Design (effective 03/15/2012) include an important change relative to the mounting height of hardware. In the previous edition of the ADA standard, section 4.13.9 included this statement: "Hardware required for accessible door passage shall be mounted no higher than 48 in (1220 mm) above finished floor." The standard did not define the low-limit of the hardware mounting height, it only required a mounting location of 48 inches or less above the floor. This could be interpreted to mean that hardware mounted very low would be acceptable on an accessible door, even though hardware in that location may be impossible for someone using a wheelchair to operate.

The 2010 standard contains language very similar to the IBC – requiring operable hardware to be mounted between 34 inches and 48 inches AFF, and also includes the exception for swimming pools. Instead of an exception for locks used only for security purposes, the ADA attempts to more clearly define locations where existing doors may have hardware mounted outside of the 34 inch to 48 inch range: "Existing locks shall be permitted in any location at existing glazed doors without stiles, existing overhead rolling doors or grilles, and similar existing doors or grilles that are designed with locks that are activated only at the top or bottom rail."

NFPA 101 – The Life Safety Code requires the releasing mechanism for any latch, other than existing installations, to be located between 34 inches and 48 inches AFF. When an existing security device is allowed on individual living units and guest rooms of residential occupancies, that device must be located not more than 60 inches AFF. Existing panic hardware may be mounted between 30 inches and 48 inches AFF, and the releasing mechanism for other latching hardware may be mounted below 48 inches AFF. The low-limit for existing hardware is not specifically called out in the newer editions of NFPA 101, and older editions of NFPA 101 only included a maximum mounting height of 48 inches AFF as well.

For recommended mounting locations of hardware, consult the Steel Door Institute (SDI) publication ANSI/SDI A250.8 – Recommended Specifications for Standard Steel Doors and Frames. Table 5 includes recommended locations for most products. Hardware not included in the table should be mounted per the manufacturer's instructions. It's important to note that when a deadbolt is mounted at a height of 48 inches to the centerline of the strike as shown in the table, some operable parts may fall above the allowable range and may be considered non-compliant. A lower mounting location should be considered.

Decoded: Mounting Heights for Door Hardware

By: Lori Greene, I Dig Hardware Blog

I made some quick updates to this Decoded article on required mounting heights for hardware, with current code references.

Each of the codes and standards that we typically refer to for requirements pertaining to door openings contains slightly different language regarding mounting heights of operable hardware. Generally, hardware must be mounted between 34 inches and 48 inches above the finished floor or ground, with exceptions for (a) locks used only for security purposes, and (b) operable hardware on doors leading to swimming pools. But it's important to understand how the standards differ, in order to fine-tune the requirements for a specific project depending on the code or standard in use.

In all editions to date, the International Building Code (IBC) requires operable hardware for most egress doors to be mounted between 34 inches and 48 inches above the finished floor (AFF). Locks used only for security purposes and not used for normal operation are excluded. The language pertaining to "locks used only for security purposes" isn't very specific, which leaves this up to interpretation by the Authority Having Jurisdiction (AHJ). The IBC Commentary gives the example of an unframed glass door at the front of a tenant space in a mall, with a lock in the bottom rail.

Deadbolts mounted within the allowable range for operable hardware may be code-compliant if they are operable with no tight grasping, pinching, or twisting of the wrist, and require no key, tool, special knowledge or effort. The code includes some exceptions for key-operated locks and for doors where two non-simultaneous releasing motions are permitted, allowing a separate deadbolt along with the latching hardware.

Beginning with the 2006 edition, there is an exception for doors and gates leading to swimming pools, spas, and hot tubs. For these openings, release devices for operable hardware may be mounted at 54 inches maximum above the finished floor, if the door is not self-locking to prevent unauthorized access. The exception in the IBC for pool doors is meant to address the requirements in some codes which call for pool doors and gates to have latching hardware mounted between 48 inches and 54 inches AFF so that a small child can not operate it. Further information on this can be found in the International Swimming Pool and Spa Code.

The ICC standard A117.1 – Accessible and Usable Buildings and Facilities (2009 and 2017) contains virtually identical language to the first paragraph from the IBC, although it does not currently include an exception for swimming pool doors and gates. The IBC Commentary addresses this by stating that "the 54-inch (1372 mm) maximum height is intended to override the maximum 48-inch (1219 mm) reach range in ICC A117.1."

Fire Door Inspection – Top 10 Deficiencies

By: Lori Greene, I Dig Hardware Blog

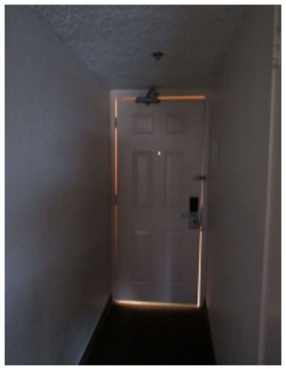
This article is a great resource on fire door assemblies, and it is included in the Allegion Code Reference Guide. BIG NEWS – I just updated the guide and it will be ready for print and download soon! In the process, I also updated this article that was originally published in Life Safety Digest, a publication of the Firestop Contractors International Association (FCIA).

More attention has been focused on fire doors and egress doors in the last decade, as the inspection requirements of NFPA 80, Standard for Fire Doors and Other Opening Protectives have become adopted and enforced. Since the 2009 editions of the International Building Code (IBC), International Fire Code (IFC), and NFPA 101, Life Safety Code, inspections of fire door assemblies have been required, with the codes referring to detailed criteria included in NFPA 80. Beginning with the 2007 edition of the standard, fire door assemblies must be inspected annually, and any deficiencies found must be corrected without delay. In addition to annual inspections, the 2013 edition of NFPA 80 and subsequent editions require fire.

The Door Security and Safety Foundation is an organization that exists to promote secure and safe openings that enhance life safety, through education and partnerships with like-minded organizations. The Foundation's research has identified the top ten deficiencies on swinging doors with builders hardware:

1. Painted or missing fire door labels

The label found on the edge or top of a fire door and in the rabbet of a fire-rated frame may be made of metal, paper, or plastic, or may be stamped or diecast into the door or frame. Labels must be visible and legible. Some embossed labels can still be read if they are painted, but if a painted label is illegible, the paint must be removed. If labels are missing or can't be made legible, the Authority Having Jurisdiction (AHJ) may require the doors or frames to be re-labeled by a listing agency.

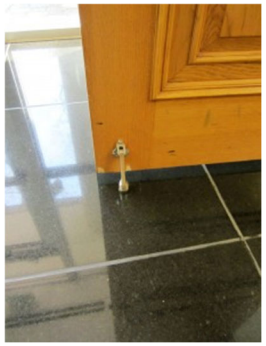


2. Poor clearance dimensions around the perimeter of the door in the closed position

The maximum clearance allowed by NFPA 80 at the head, jambs, and meeting stiles of pairs is 3/16 inch for hollow metal doors, and 1/8 inch for wood doors rated more than 20 minutes. The 2016 and subsequent editions allow a clearance of 1/16 to 3/16 inch for HPDL-faced doors, wood doors, and stile and rail doors with a rating up to 1/3-hour installed in hollow metal frames.

New products have been successfully tested and listed for use on a fire door assembly where clearances are larger than what is allowed by NFPA 80. For clearances in excess of what is permitted by the standard, listed gasketing products may be permitted as an alternative to replacing the door. Shimming the hinges with metal shims may help to correct the problem, and there are metal edges available that are listed for use when a door needs to be increased in width to reduce the clearance. Door shoes and sweeps are now available that have been tested and listed to address excessive clearance at the bottom of a fire door, as well as products that extend the thickness of the frame stop when there are perimeter clearance problems.

3. Kick-down door holders



doors must be self-closing, automatic-closing, or power-operated (with a few exceptions), a kick-down holder is not an acceptable way of holding open a fire door. A mechanical hold-open feature in a door closer and other types of hold-opens such as wedges, hooks, and overhead holders are not allowed for fire doors either.

An automatic-closing fire door is held open electronically, and closes upon fire alarm activation. This may be accomplished with a wall- or floor-mounted magnetic holder, a closer-holder unit which receives a signal from the fire alarm system or incorporates its own smoke detector, or a separate hold-open unit that is paired with a standard door closer.

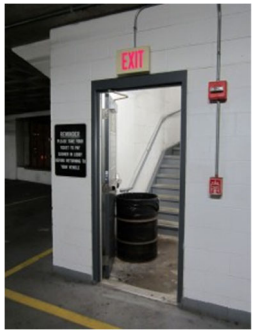
Existing fire doors may be equipped with fusible link closer arms, which incorporate a fusible link that is intended to melt during a fire and release the hold-open. Current building and life-safety codes do not allow fusible link arms on doors in a means of egress, because they do not allow the doors to control the spread of smoke. Automatic-closing doors must be initiated by the fire alarm system or smoke detection in most locations.

4. Auxiliary hardware items that interfere with the intended function of the door

These auxiliary items may include creative ways of holding open the door or providing additional security. In many cases the auxiliary items create an egress problem, for example, additional locks or surface bolts (most egress doors must unlatch with one releasing motion), chains or creative devices used with panic hardware, or electronic access control products that have not been installed with the required release devices for code compliance. Hardware installed on fire doors must be listed for that purpose, and items not listed for use on a fire door must be removed. Holes left by the removal of auxiliary items and other components must be filled in accordance with NFPA 80, typically either with steel fasteners, or with the same material as the door or frame. Fire door caulk is now available but there are limitations on door material, fire rating, and hole size.

Field preparation for these auxiliary items may also create a problem on fire doors. NFPA 80 limits job site preparation of fire doors to holes for surface-applied hardware, function holes for mortise locks, and holes for labeled viewers. Until the 2016 edition of the standard, the maximum hole diameter was 1 inch (25 mm), except holes for cylinders which may be any diameter. The 2016 and 2019 editions of NFPA 80 allow round holes of any diameter to be prepared in the field, if allowed by the manufacturers' listings. Protection plates may be field-installed, and wood and composite doors may be undercut in the field a maximum of 3/4 inch (19 mm) (check with the door manufacturer first). Field modifications beyond what is allowed by NFPA 80 may void the label and require re-labeling of the assembly.

5. Fire doors blocked to stay in the open position



If a fire door is not able to close, it can't compartmentalize the building and prevent the spread of fire and smoke. Fire doors are typically blocked open for the convenience of the building's occupants. Many people don't understand the function of fire doors, and may compromise life safety without realizing the results of their actions. Educating facilities staff and the building's occupants on fire door requirements can help to avoid a problem, and/or a fine from the local fire marshal.

6. Area surrounding the fire door assembly blocked by furniture, equipment and/or boxes

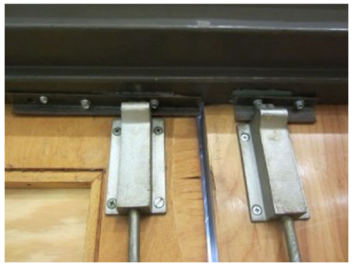
In addition to the annual inspection of fire doors, recent editions of NFPA 101 – The Life Safety Code require certain egress doors to be inspected annually as well. The area leading to fire and egress doors must be kept clear for egress purposes, and to provide the required maneuvering clearance for accessible openings.

If a fire door is no longer used as a door, building occupants will sometimes place furniture or stack stored items against the door. NFPA 80 requires fire doors that are no longer in use to be removed and replaced with wall construction matching the adjacent wall. A fire door typically carries a lower hourly rating than the wall, because the fuel load against an operable door is much less than a wall with furniture and other materials against it. If a 20-minute door in a 1-hour wall has an increased fuel load because it is no longer operable, it will not be able to withstand fire for the required amount of time. Check required egress routes before removing any door.

7. Broken, defective or missing hardware items (latch bolts and/or strike plates, closer arms, cover plates, etc)

Hardware may not perform as designed and tested if it is missing parts or if the hardware has become damaged. Bent closer arms may not close the door properly. Missing cover plates may create a passage for smoke, and a missing strike or latchbolt could mean that the door does not stay positively latched when exposed to the pressures of a fire. When defective hardware is noted, it must be repaired or replaced without delay.

Ten – YES 10! – years ago, I wrote a post asking what lock function readers recommended for a lactation room or nursing room. In that post I shared a link to the AIA recommendations for lactation/wellness rooms, which have since been updated.



8. Fire exit hardware installed on doors that are not labeled for use with fire exit hardware

Fire exit hardware is panic hardware that is listed for use on a fire door. It is not equipped with mechanical dogging (the ability to hold back the latch) because fire doors need to positively latch, but electric dogging may be used as long as the latch projects automatically if a fire occurs.

Fire exit hardware is not required for every fire door. Its use is determined by the occupancy type and the occupant load. The IBC requires panic hardware/fire exit hardware for assembly and educational occupancies with an occupant load of 50 people or more (2006 edition and later). NFPA 101 requires panic hardware/fire exit hardware for assembly, educational, and day care occupancies with an occupant load of 100 people or more. Both of these model codes also require panic hardware for high hazard occupancies, with any occupant load per the IBC, and with an occupant load of more than 5 per NFPA 101.

When fire exit hardware is installed, NFPA 80 requires the door to have a label stating, “Fire door to be equipped with fire exit hardware.” This ensures that the door is properly reinforced for the fire exit hardware. An existing door that is prepped for a lockset may not be reinforced for fire exit hardware or carry the proper label, so fire exit hardware should not be retrofitted to an existing door that was not originally prepped for it unless the label allows both types of hardware.

9. Missing or incorrect fasteners

In most cases, hardware must be installed with the fasteners provided by the manufacturer. Installers sometimes use other fasteners for faster installation or because the original fasteners have been lost. There must be no missing fasteners on hardware installed on fire doors, and some products may require through-bolts if the door does not have adequate blocking or reinforcing.

10. Bottom flush bolts that do not project ½” into the strike

Flush bolts are used on the inactive leaf of pairs of doors when the active leaf has a lockset. There are three types: manual, automatic, and constant-latching. They typically project into the frame head and into the floor, although there are some automatic and constant-latching bolts which have a top bolt only, and incorporate an auxiliary fire pin. This pin projects when a certain temperature is reached and engages into the edge of the other door.

Manual flush bolts are projected and retracted manually, and are only allowed by NFPA 80 on fire doors “where acceptable to the AHJ, provided they do not pose a hazard to safety to life.” Annex A – Explanatory Material states, “This provision limits their use to rooms not normally occupied by humans (e.g., transformer vaults and storage rooms).” The use of manual flush bolts is also limited to certain applications by the egress code requirements, because it requires two motions to unlatch the door when manual flush bolts are installed, and they are not within the allowable reach range for accessibility.

Automatic flush bolts project automatically when the active leaf is closed, via a small trigger on each bolt. When the active leaf is opened, the bolts retract automatically, making them acceptable for use on most egress doors that don’t require panic hardware. The inactive leaf must not be equipped with “dummy” hardware (lever or bar) which suggests that the inactive leaf can be operated independently. Automatic flush bolts are considered positive-latching and can be used on fire doors as long as fire exit hardware is not required. When automatic flush bolts are used, a coordinator is also required to ensure that the inactive leaf closes before the active leaf.

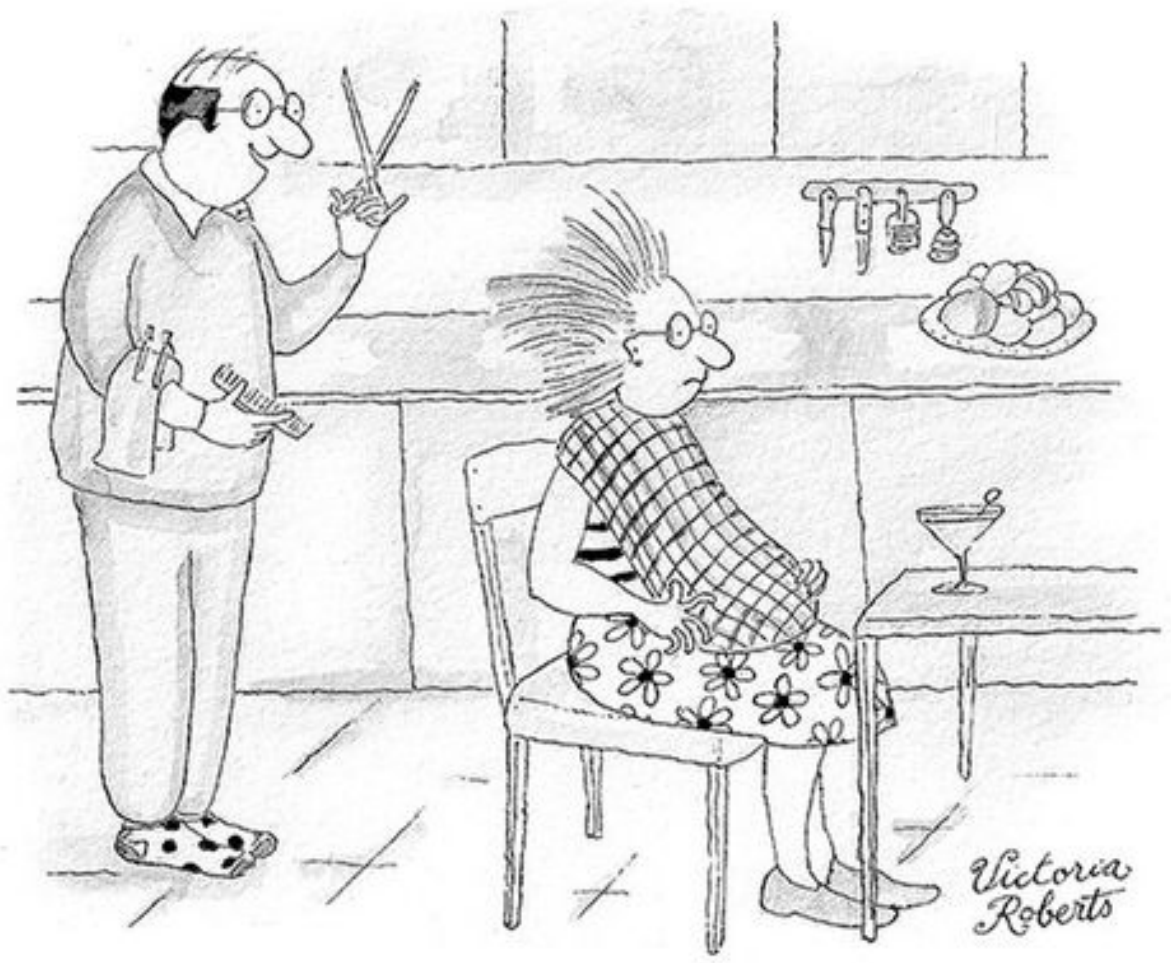
Constant latching flush bolts have an automatic flush bolt on the bottom, and the top is a spring-loaded bolt which is retracted manually to open the door. These bolts provide a higher degree of security than the other two because the inactive leaf is more likely to be closed and latched properly. They can be an egress issue for some doors because the top bolt has to be retracted manually, and it is not within the accessible reach range. A coordinator is also required for this application if the inactive leaf is equipped with a door closer.

When the bottom bolt doesn’t engage properly, there is no assurance that the fire door will perform as it was designed and tested during a fire. The undercut of the door must be carefully coordinated to ensure the proper engagement of the bottom bolt. Another issue with flush bolts on fire doors is that the coordinator/auto flush bolt combination can be difficult to keep functional in a high-use opening. If the latches don’t retract properly or if the inactive leaf is pulled or pushed without opening the active leaf first, the corners of the door can be susceptible to damage because of the volume of material removed to prepare the door for the flush bolt. This problem is particularly common on wood fire doors.





The requirements for the annual inspection of fire and egress doors have drawn attention to the condition of existing doors, and the potential failure of these doors to perform in a fire or emergency. If the inspection requirements are not being enforced in your area, fire and egress doors are still required to be properly maintained, so now is the time to make a plan for inspecting the doors in your facility and repairing or replacing deficient components. Written documentation of fire door inspections must be kept for review by the AHJ. Inspections may be conducted by an individual who is knowledgeable about the type of doors being inspected, and there are several fire door inspection training programs available.



"Trust me, Margherite—I'm an architect."

Quick Question: Through-bolts on Fire Exit Hardware

By: Lori Greene, I Dig Hardware Blog

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:

Is fire exit hardware required to be attached to a fire door with through-bolts?

As with most questions related to fire doors, I headed to NFPA 80 – Standard for Fire Doors and Other Opening Protectives. There I found a couple of references to fire exit hardware in Section 6.4.4.8 – Door Attachments (refer to this section for other attachment requirements).

This paragraph says that the doors need reinforcements for fastening the hardware with machine screws, or the hardware must be attached with through-bolts:

6.4.4.8.1 – Locks, latches, surface-mounted top and bottom bolts, and fire exit hardware shall be secured to reinforcements in the doors with machine screws or attached with through-bolts.

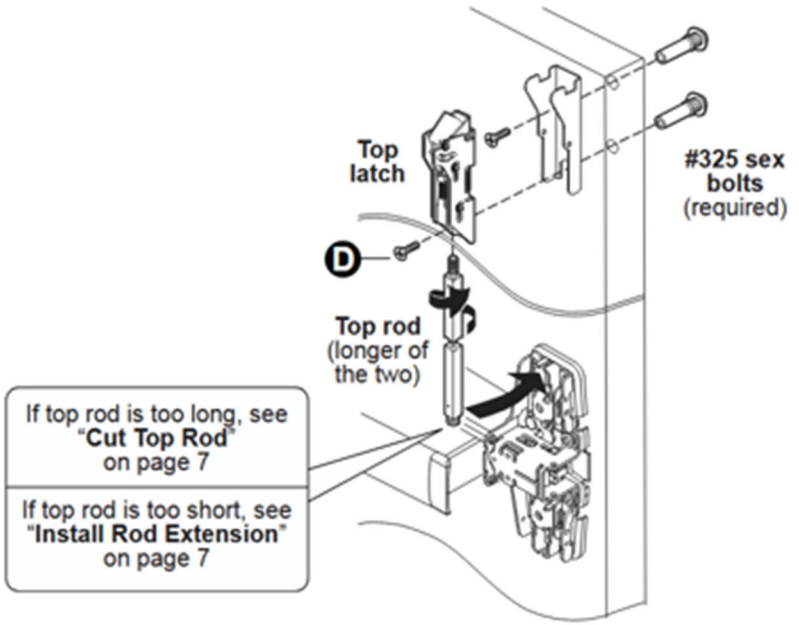
This paragraph references wood and plastic laminate doors, and says that the hardware must be secured with through-bolts or with steel screws:

6.4.4.8.5 – Fire exit hardware and surface-mounted top and bottom bolts shall be attached to wood and plastic-covered composite doors with through-bolts or with steel screws at locations specified in the door manufacturer's installation instructions.

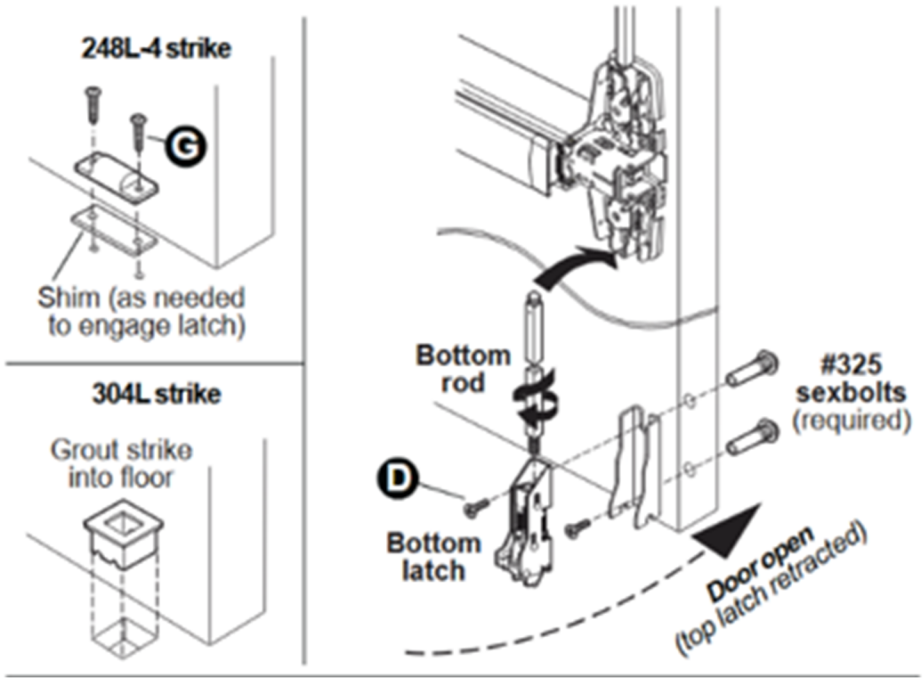
BUT – I took a look at the Von Duprin 9927L-F installation instructions and I found something interesting. For both the top and bottom latches the installation instructions show "#325 sex bolts (required)" – this is more restrictive than what is permitted by NFPA 80. I checked with one of our compliance engineers and confirmed that because through-bolts are required by our installation instructions, they must be installed to maintain the UL listing for the fire exit hardware.

My advice is…check the manufacturer's instructions and use the required fasteners. If you have experience with this in the field, please share in the comments!

9 Install Top Latch and Rod



12 Install Bottom Strike, Latch, and Rod



Quick Question: Storeroom Function Locks on Classroom Doors

By: Lori Greene, I Dig Hardware Blog

Today's Quick Question came up recently, regarding an upcoming change to the 2027 International Building Code (IBC):

Is a storeroom function lock acceptable for use on a classroom door that must be lockable from inside the room?

To my surprise, when I asked Google this question using iDigHardware as a reference (to see if I had already addressed this topic), Google AI's answer was "no." I disagree!

A proposal (E57-24) has been approved for the 2027 IBC that will apply to occupiable rooms in educational facilities, and will require doors serving those rooms to be lockable from inside the room. Here is a portion of that proposal – there are additional changes related to exterior doors in these facilities:

Add new text as follows:

1010.2.7 Locking arrangements in educational occupancies. In Group E occupancies, Group B colleges and universities, Group A occupancies accessory to Group B colleges and universities, and Group I-4 occupancies, egress doors and exterior entry doors shall comply with Sections 1010.2.7.1 through 1010.2.7.3.

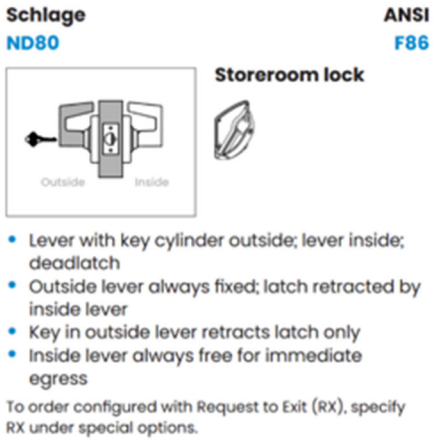
Revise as follows:

~~1010.2.7~~1010.2.7.1 ~~Locking arrangements~~ Egress doors in educational occupancies.
~~In Group E occupancies, Group B educational occupancies, and Group I-4 occupancies, egress~~ Egress doors from classrooms, offices and other occupied rooms shall be provided with locking arrangements designed to keep intruders from entering the room and shall comply with all of the following ~~conditions~~:

1. The doors shall be capable of being locked from inside the room.
2. ~~1.~~ The doors shall be capable of being unlocked from outside the room with a key or other *approved* means.
3. ~~2.~~ The doors shall be openable from within the room in accordance with Section 1010.2.
4. ~~3.~~ Modifications shall not be made to *listed panic hardware*, *fire door* hardware or door closers.
5. ~~4.~~ Modifications to *fire door assemblies* shall be in accordance with NFPA 80.

~~Remote locking or unlocking of doors from an *approved* location shall be permitted in addition to the unlocking operation in Item 1.~~

Storeroom function locks have become a popular function for classroom doors, because these locks are always locked on the outside while allowing free egress at all times. When the proposal above was being discussed, the interpretation of the BHMA committee was that a storeroom function lock would meet the requirements of this section, because closing the door (from inside the room) would result in a door that was locked to prevent access.



Other functions such as entrance/office function (thumbturn or push button inside), classroom security function (key cylinder inside), or locks with electrified access control would also be acceptable. Traditional classroom function locksets, which require the door to be opened and a key inserted in the outside lever, would not meet the new requirements.

I expect to see a clarification in the 2027 IBC Commentary that will help to express the intent of the code with regard to storeroom function locks, but in my opinion, they do meet the intent, as closing the door also locks the door. I can't think of any reason that the code would want to prevent the use of storeroom locks.

6 CONSTRUCTION RULES

01 **START SLOW TO MOVE FAST**

02 **MEASURE TWICE, POUR ONCE**

03 **THE SITE SPEAKS. LISTEN**

04 **QUALITY STARTS IN THE OFFICE**

05 **YOU'RE ONLY AS STRONG AS YOUR WEAKEST SUBCONTRACTOR**

06 **FINISH STRONG**

Reducing Physical Barriers

By: Colleen Furlong, Allegion

When designing a doorway to be inclusive, the goal is to remove friction for all users and provide safe and easy access. Inclusive design considers a broad range of user needs and looks for solutions that elevate the experience for everyone. ADA mandates strict tolerances for floor transition and threshold height, clear opening size and maneuvering clearance. To provide the desired user experience and meet the code requirements, door hardware professionals turn to solutions that are purposefully engineered with accessibility in mind. In today's guest post, Colleen Furlong of Allegion explores these concepts further.

Why Reducing Physical Barriers Is Essential to Inclusive Opening Design

When designing a doorway to be inclusive, the goal is to remove friction for all users and provide safe and easy access. To help achieve this, physical barriers must be addressed, and code compliant ramps, thresholds and hardware are helpful tools in doing so.

Empathy in Form and Function

A user centric approach is key to understanding potential points of friction and addressing them to make movement through a space easier and more intuitive. The intent is to create an environment where the hardware and floor transitions support an uninterrupted path of travel.

Ana Sofia Esquivel, industrial designer at Allegion, explains, "Inclusive design considers a broad range of user needs and looks for solutions that elevate the experience for everyone. The goal is to provide the same seamless experience, whether the person using the opening is a parent carrying an infant, a person in a wheelchair or someone experiencing a temporary limitation. When an opening is designed to minimize barriers, it can improve usability for all."

The Architectural Standard for Equity

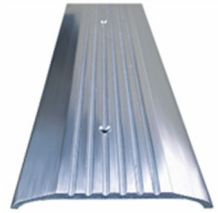
When looking at requirements for an opening, a starting point in the door hardware industry is the applicable model codes and standards. When it comes to accessible openings, the Americans with Disability Act (ADA) is a frequently referenced standard. ADA mandates strict tolerances for floor transition and threshold height, clear opening size and maneuvering clearance.

Lori Greene, Allegion's manager of codes & resources, shares key aspects of the standard:

- **Changes in Level**: The accessibility standards include requirements intended to allow building occupants to move through doorways without encountering obstacles. For example, changes in level can make it more difficult for someone using a wheelchair to maneuver through a door opening. To help mitigate these challenges, the standards limit thresholds for both manually-operated and automatic doors to ½-inch maximum height (¾-inch for existing or altered thresholds). For these thresholds, a change of level of up to ¼-inch is permitted to be vertical, and changes in level of ¼-inch to ½-inch must be beveled with a slope not greater than 1:2. If the rise is greater than ½-inch, a ramp with a slope of 1:12 maximum must be used (with some exceptions for existing locations).
- **Clear Opening Width**: For most doors, the minimum clear opening width is 32 inches (there are some exceptions). For single doors, this is measured from the face of the door – open to 90 degrees – to the stop on the strike side of the frame. For pairs of doors, at least one door must provide a minimum of 32 inches of clear opening width. Again, this is measured with the door open to 90 degrees, and the measurement is taken from the face of the open door to the edge of the other door in the closed position or to the side of the mullion, if present.
- **Projections**: To address panic hardware and other latching hardware, projections into the required clear opening width of up to 4 inches are allowed at a height of 34 inches or more. If a door opening does not provide sufficient clear opening width, swing clear hinges may help to meet the clear width requirement. On manual doors, within the bottom 10 inches of the door height (measured up from the floor), hardware may not project off the door. This area must be flush and smooth to avoid catching a crutch, cane, or wheelchair footpad as the person moves through the doorway.
- **Clear Opening Height**: The minimum clear opening height is typically 80 inches. The model codes and referenced standards permit some types of hardware to project down into the opening as long as a clear opening height of 78 inches is maintained, measured to the projecting hardware. While the accessibility standards reference the projection of door closers and door stops, the International Building Code (IBC) has added additional exceptions for automatic operators and electromagnetic locks.
- **Maneuvering Clearance**: The area around a manually operated door is required to be kept clear of obstructions, to allow a person using a wheelchair, walker, or crutches sufficient space to maneuver when opening the door. This area is called the maneuvering clearance, and the size of the required clear space can vary depending on whether it is on the push side or pull side of the door, and if the approach to the door is from the front, the latch side or the hinge side. If a door does not have the required maneuvering clearance, adding an automatic operator may bring the opening into compliance. Refer to the adopted accessibility standard for specific maneuvering clearance dimensions.

Erasing the Physical Divide

To provide the desired user experience and meet the code requirements, door hardware professionals turn to solutions that are purposefully engineered with accessibility in mind, to overcome challenges with uneven surfaces, floor transitions, opening widths and other accessibility challenges.



Zero International ADA Thresholds

Thresholds can help smooth the transition between surfaces. Zero offers a wide array of thresholds to address a variety of opening conditions, including uneven floor heights, different flooring materials, and demanding environmental conditions. A wide range of Zero thresholds are ADA compliant—simply look for the ADA icon in the catalog to identify these models.

When addressing changes in floor elevation, Zero's ADA ramps offer a gradual, sloped design. For more complex floor transitions, Zero's Traction Tread™ Adjustable Thresholds feature an adjustable height mechanism to level uneven floors.

In retrofit applications where new flooring meets an existing surface, creating a flush transition can be difficult. Zero's Half-Saddle thresholds feature a flat profile on one side and a sloped edge on the other, making them an effective, ADA-compliant solution for bridging the gap between flush surfaces and raised floors without creating a tripping hazard.

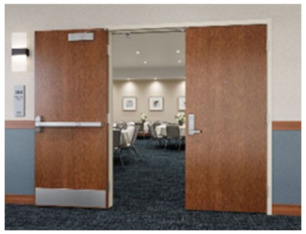
Because accessibility also relies heavily on slip resistance, safety is built into the surface of these products. Many Zero thresholds can be customized with Traction Tread™ Non-Slip Epoxy Abrasives. These finishes provide a high friction coefficient and can support safe passage for users, even in wet conditions.

For applications where environmental protection is needed in addition to accessibility, Zero offers specialized ADA-compliant solutions. Rabbeted thresholds, for example, help control demanding environments where temperature or acoustic performance is a primary concern. Additionally, thermal break thresholds are effective for exterior openings at mitigating cold transfer and condensation build up on the interior and at helping keep the floor dry and safe while maintaining an accessible path of travel.

Zero Automatic Door Bottoms with Light Spring (LS) Option

While Automatic Door Bottoms (ADBs) are highly effective at sealing the gap beneath a door, the friction of standard models can sometimes increase the force needed to open the door, potentially exceeding ADA limits. To solve this, Zero offers 'Light Spring' (LS) Automatic Door Bottoms. These models utilize a specialized spring mechanism that requires significantly less operating force, allowing facilities to achieve superior sound and draft control while maintaining the ADA 5 lbf maximum opening force requirement.

Keep in mind, both the ADA Standards for Accessible Design and ICC A117.1 Accessible and Usable Buildings and Facilities require manually operated doors to have a flush smooth surface on the push side, measured 10 inches up from the floor, so mortised or semi-mortised ADBs are an effective solution in such circumstances.



LCN Closers | Holding the Door

A door could have all the bells and whistles—proper maneuvering clearance, a proper threshold, correct hinges, but there's still one thing left for consideration—the door itself. Even a properly hung door that is fully code compliant can present a challenge to those with limited mobility. So, what are the options to help with this unavoidable barrier?

One is to mechanically hold the door open at a full 180-degree swing. This can not only clear the opening itself but also keep the door from becoming an unintentional barrier in the room or corridor it opens into. One important note: a mechanical hold open cannot be used on a fire door.

For a high-traffic opening, the cast iron LCN 4040XP with a hold open extra duty arm (HEDA) is an excellent option. This configuration mounts on the push side of a door and has an adjustable hold open point up to 180°. Simply set the desired hold point during installation, and any user can activate it by pushing past that point or disengaging the hold open by pulling the door in the closing direction.

For a lighter traffic opening, the LCN cast iron 1460 with a standard hold open arm (H) is another great choice. This closer can mount on the push or pull side of a door for a full 180° swing, providing the installer some flexibility based on the expected flow of traffic.

For fire-rated doors, our 4310ME SENTRONIC closer with a swing free arm is a great configuration to make navigating an opening simpler—particularly for those who need additional time. As opposed to immediately closing upon release, the 4310ME holds the door in place where it was released, whether that be 35° or 90°. The swing free arm then allows the door to act similarly to a door without a closer between that release point and fully closed.

This functionality can allow a person with mobility challenges to gradually make their way through an opening without the need to consistently apply pressure to open the door. The door can be pushed open in small increments, allowing the individual to make their way through the opening at a pace that is comfortable within their abilities.

While removing the door entirely isn't usually a realistic option, LCN provides a variety of applications that can at least minimize the door as a barrier to accessibility. To further explore LCN's many accessible configurations, please visit LCNClosers.com.

Von Duprin Panic Devices Less Bottom Rod (LBR)

Each type of exit device has a specific door and frame prep. For vertical rod devices this may require the need for a floor strike. For accessible openings, the Von Duprin less bottom rod (LBR) solution is an attractive option because it eliminates the floor strike and hardware at the bottom of the door. This leaves the threshold clear and minimizes protruding hardware. Should a bottom latch be required, Von Duprin offers rod guards and latch guards, which have smooth sloped surfaces to minimize the possibility of interference when accessibility is a concern.

In the case where the LBR solution is on a fire-rated opening, an auxiliary fire latch (AFL) must be paired with the device. Fire-rated openings require secure, multi-point latching to prevent door warpage and maintain compartmentalization during extreme heat. To address this, an AFL is installed within the door edge. This heat-activated mechanism automatically deploys when exposed to high temperatures, securely pinning the doors together or to the frame. By integrating an auxiliary fire latch, facilities can leverage the operational and architectural benefits of an LBR device while maintaining compliance with life-safety and fire-rating standards.

A Seamless Path Forward

Removing physical barriers at the doorway is a technical challenge that requires precise specification and a clear understanding of how people move through a space. By aligning empathetic industrial design principles with knowledge of codes, delivering environments that are fundamentally accessible, safe and welcoming to everyone becomes a greater possibility.

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