

Door Security + Safety

DHI'S PUBLICATION FOR DOOR SECURITY + SAFETY PROFESSIONALS

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2022 Forecast, Codes and Specifications



**UL 294 vs
UL 1034**
See Page 14

INSIDE:

- + DODGE CONSTRUCTION NETWORK PROJECTS MODERATE GROWTH FOR 2022
- + WHAT'S NEXT: APPROVED CHANGES TO THE 2024 INTERNATIONAL BUILDING CODE
- + THE VALUE OF A CREDENTIALLED EXPERT
- + MORE



Beginning with the 2024 IBC, doors required to have panic hardware will not be allowed to have electromagnetic locks released by a sensor; the maglock must be released by a switch in the panic hardware.



What's Next:

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Approved Changes to the 2024 International Building Code

Several new IBC code modifications affecting electrified hardware have been announced.

The International Code Council (ICC) code development cycle for the 2024 editions of the model codes commenced at the beginning of 2021. Many proposals related to electrified hardware have already been approved and will be included in the next edition of the International Building Code (IBC).

As with past code development cycles, the Builders Hardware Manufacturers Association (BHMA) Codes, Government and Industry Affairs (CGIA) Committee played an important role in modifying the 2024 codes.

The code development process is a lengthy one. The investment of BHMA in this process helps ensure the model codes are technically appropriate and up to date with regard to door openings, and have clear and concise requirements and use language that is consistently interpreted, applied and enforced. When questions are frequently raised about a particular code section pertaining to door operations or door hardware, we try to address them through this process. The code sections related to electrified hardware are a common source of questions.



After working together to develop and submit BHMA's proposed changes, the CGIA Committee then reviewed proposals submitted by other organizations to identify which of these would affect the door and hardware industry. This ensured we were prepared for the Committee Action Hearings where testimony was presented in support of, and opposition to, the proposals. The ICC code development process continued through the public comment hearings—the second round of public debate.

Proposals for the 2024 IBC have been approved for a number of electrified hardware applications. These changes should have a huge impact on interpretation and implementation. Some of the approved changes are clarifications of the intent of the code, and others are changes to the requirements. The approved clarifications may be able to be implemented immediately. The approved changes could be used as the basis for a request made to the authority having jurisdiction (AHJ) for a code modification prior to adoption of the 2024 IBC.



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Access Control/Free Egress

ICC Proposal E49-21—Approved as Modified by Public Comment 1

One of the most common model code misinterpretations associated with electrified hardware is the failure to differentiate between “special locking arrangements” and “normal locking arrangements.” Special locking arrangements may affect egress, and there are specific requirements in the model codes for each application. These specific requirements help to balance life safety with security. However, the most common type of access control door does not limit or affect egress. For these doors, the access control reader controls ingress. The door hardware allows free egress regardless of the status of the access control system. These systems are not considered special locking arrangements and could instead be called normal locking arrangements.

It is confusing, as currently there is no section in the model codes that specifically addresses these access control doors that allow free egress. That will change in the 2024 IBC, as a proposal has been approved that clarifies the intent of the code. Doors with access control systems and doors with systems that monitor or record egress may have hardware that complies with one of the sections addressing special locking arrangements, or “shall be readily openable from the egress side without the use of a key or special knowledge or effort.”

When a door with an access control reader on the ingress side of the door is equipped with hardware that facilitates free egress, this section makes it clear that the door and hardware do not have to comply with the special locking arrangements sections. These normal locking arrangements are required to comply with the typical egress requirements for mechanical hardware.

Electrified Hardware Listings—UL 294 or UL 1034

ICC Proposal E52-21—Approved as Submitted

Due in part to the access control misinterpretations covered earlier, some AHJs have required *all* hardware used on *all* access control doors to be listed to UL 294—Standard for Access Control System Units. While the UL 294 listing is required by the model codes for some types of special locking arrangements, the listing is not required for doors that have an access control reader to limit ingress in conjunction with hardware that allows free egress.

The other question that was not clearly addressed in the model codes regarded which electrical locking system components were required to be listed to the UL 294 standard. Does the requirement apply to the locks only, or do power supplies, readers, push buttons, electric power transfers and other electrified products also require the UL 294 listing?

The 2024 edition of the IBC has clarified that in each of the four special locking arrangements sections that require the listing: **“The electro-mechanical or electromagnetic locking device shall be listed in accordance with either UL 294 or UL 1034.” This limits the required listing to the lock itself and allows the product to be listed to either UL 294 OR UL 1034.**

Electrified Locks Released by a Sensor on Doors With Panic Hardware

ICC Proposal E48-21—Approved as Submitted

Electromagnetic locks are considered one of the special locking arrangements, and a change proposed by an AHJ has been approved for the 2024 IBC. The approved change will affect where maglocks may be used. The model codes cover two methods for releasing maglocks:

- **Sensor Release:** The maglock is released by a sensor that detects an approaching occupant and unlocks the door. An auxiliary push button is required beside the door, which is marked “Push to Exit” and unlocks the door for 30 seconds, independent of the access control system electronics. The lock must also unlock upon activation of the fire alarm/sprinkler system, if provided, and upon loss of power.
- **Door-Hardware Release:** The maglock is released by a switch in the hardware mounted on the door such as panic hardware or a lever handle with a request-to-exit switch or a sensor bar. The maglock must also unlock upon loss of power.

The 2021 edition of the IBC states in the panic hardware section that doors required to be equipped with panic hardware or fire exit hardware are permitted to be electrically locked in accordance with either of the sections addressing sensor-release locks or door-hardware release locks. The change to the 2024 IBC removes the reference to the sensor-release section. This means that beginning with the 2024 code, the IBC will

not allow doors required to be equipped with panic hardware to have electromagnetic locks released by a sensor. If a door required to have panic hardware will also be equipped with an electromagnetic lock, the lock must be released by a switch in the panic hardware (and by loss of power).

Emergency Release Methods for Stairwell Reentry

ICC Proposals E47-21 and G61-21—Approved as Modified by Floor Modifications

The IBC currently states that all doors leading to a stairwell must allow building occupants to leave the stairwell if it should become compromised during a fire by smoke and flames or by firefighters and equipment. To facilitate stairwell reentry, doors may have passage sets or fire exit hardware with non-locking lever trim (no lock on either side of the door). Doors may also have electrified locks or electrified lever trim for fire exit hardware. During a fire, the electrified lever on the stair side is intended to be unlocked remotely without unlatching, allowing building occupants to open the door from within the stairwell to find another exit or wait for assistance.

In past editions of the IBC, the doors were required to be unlocked by a switch located at the fire command center or inside the main entrance of the building. What if the fire department has not yet arrived to activate the switch? What happens to the locks if there is a loss of power? For this application, the hardware industry typically uses fail-safe locks that release upon loss of power, but this was not specifically mandated by past editions of the code.

This will be resolved in the 2024 IBC. Then, locks on the stair side of stairwell doors must be capable of being unlocked simultaneously without unlatching, when any of the following conditions occur:

- A signal from the fire command center, if present, or a signal by emergency personnel from a single

location inside the building’s main entrance.

- Activation of a fire alarm signal (where present) in an area served by the stairwell.
- Power failure to the electric lock or locking system.

This change will ensure the highest level of safety in stairwell reentry and will align with what has already been an industry best practice.

Elevator Lobby Exit Access Doors

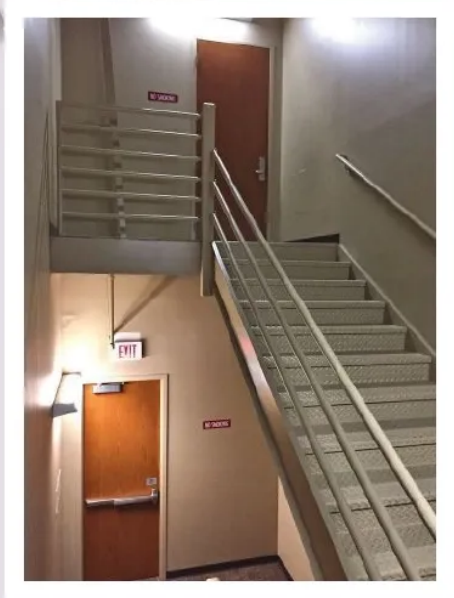
ICC Proposal E56-21—Approved as Modified by Floor Modification

There is a new section of the 2024 IBC that will not technically apply until this edition of the code has been adopted in a project’s jurisdiction. Until then, an AHJ could grant a code modification based on the requirements of the 2024 edition.

The change is related to elevator lobby doors and the need to secure the doors between elevator lobbies and tenant spaces. Although NFPA 101—Life Safety Code includes a section allowing doors between elevator lobbies and tenant spaces to be locked, the IBC did not contain a similar section. Several cities and states have modified the IBC to add requirements similar to those of NFPA 101, but the requirements were not consistent from one state or local code to the next.

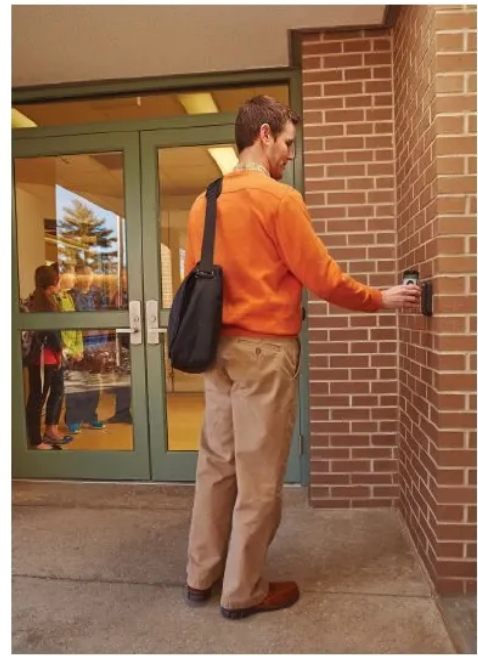
The 2024 IBC will include a new section allowing doors leading from an elevator lobby to a tenant space to be locked, preventing access from the elevator lobby to the tenant space if certain criteria are met, including:

- The path of travel, for all building occupants, to at least two exits must not be required to pass through the elevator lobby.
- The building must be equipped throughout with an automatic sprinkler system and a fire alarm system. The elevator lobby must be provided with an automatic smoke detection system.



Changes to the 2024 IBC will align the code requirements with industry best practices and will add a requirement for stairwell doors to unlock upon fire alarm activation to allow reentry.

The most common type of access control door has electrified hardware that controls access but does not affect egress. A change to the 2024 IBC will address these doors.



- Activation of the fire alarm system must automatically unlock the lock to allow egress from the elevator lobby, and the lock must remain unlocked until the fire alarm system is reset. Activation of the fire alarm system by a manual fire alarm box is not required to unlock the doors.
- The electric locks must unlock upon loss of power via a switch located at the fire command center, security station or other approved location.
- A two-way communication system must be installed in the elevator lobby adjacent to the door with the electrified hardware. The communication system must be connected to an approved, constantly attended station that has the capability of unlocking the door.
- Emergency lighting must be provided on both sides of the electrically locked door.
- The door locking system units must be listed to UL 294 (note the approved change may encourage the ICC code correlating committee to modify this text to allow this hardware to be listed to UL 1034 as an alternative to UL 294).

A future article will address some of the 2024 code changes related to mechanical hardware. Remember, changes that are clarifications to the code may be used

immediately to help with a better understanding and more consistent interpretations. Approved proposals that are actual changes to the requirements will not technically apply until the new code has been adopted in a project's jurisdiction. In the meantime, the new code language could be used when requesting a code modification from the AHJ. Keep in mind that state or local codes may vary from the model codes. +



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