

Q&A from Live With Lori Session 1 – Access Control, July 29th, 2026

Note: This is an edited transcript of the Q&A from the live session, including some additional questions that were submitted but not answered due to time constraints. Questions that were not related to the session topic or that were specific to a certain jurisdiction are not included in this transcript. [The local ACE \(Allegion Code Expert\)](#) can be consulted for local code questions.

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Q&A

1. When evaluating existing sites for retrofitting access control, how do you determine the use group of the building or space? (Lori)

This is a great question because the use group or occupancy classification is really important to consider when you're trying to apply the codes. For example, delayed egress locks are not permitted in every use group, and controlled egress locks are ONLY permitted in one type of occupancy. It's not always easy to figure out the use group for an existing building – on new projects you can usually get this information from the architect or from the life safety plans. For existing buildings you can get a sense of what the building is being used for and then refer to the adopted code. There are definitions for the NFPA occupancy classifications in the Allegion Code Reference Guide, and also a list of use groups for the I-Codes. One thing to watch out for is assembly occupancies – sometimes they are within other occupancies like a large training room in an office building. There's no easy answer – it might take some digging. This information should be available through the city or town where the building is located – on the certificate of occupancy, the building permit, or other records.

2. I'm often confused about UL two ninety-four versus UL ten thirty-four. What's the main difference, and could a product ever need to meet both? (Matthew)

The Bottom Line: Think of UL 294 as evaluating the "**Brains**" (the access control system's logic, communication, and power), while UL 1034 evaluates the "**Brawn**" (the physical lock's mechanical resistance to a burglary attempt). They work together to create a holistic

secure opening. While their primary focus differs, because both deal with electrified hardware, they share a common foundation of strict electrical safety and reliability testing.

The Details:

UL 294 (Access Control): Covers the logic and system. It evaluates controllers, readers, power supplies, and egress devices to ensure they grant/deny access correctly. Unique tests to this standard include:

- *Line Security Test:* Verifies the encryption (none all the way up to 256-bit AES) and supervision of communication lines to ensure hackers cannot spoof a credential or wiretap the network to open a door.
- *Controlled/Delayed Egress Requirements Section:* Strictly evaluates the life-safety logic, ensuring the system immediately unlocks upon a fire alarm/power loss, and accurately enforces 15- or 30-second delay limits.
- *Standby Power Test:* Verifies that the system's battery backup (if applicable) can keep the access control network running securely for up to 4 hours during a total power outage.
- *Endurance (Cycle):* Level 1 (1,000) up to Level 4 (100,000).

UL 1034 (Burglary Resistance): Covers the physical, mechanical strength of electric locks (like electric strikes, maglocks, and deadbolts). It proves the lock can take a physical beating. Unique tests to this standard include:

- *Static Strength Test:* Applies a steady, horizontal pulling force of up to 1,500 lbs for a full minute to simulate a burglar using a crowbar or jack.
 - *Dynamic Strength Test:* Swings a 100-pound solid steel ram on a pendulum directly into the door five consecutive times to simulate violent kicks or a battering ram.
 - *Tool Manipulation Test:* Gives an expert operator 5 minutes to try and pick, pry, or mechanically bypass the locking mechanism using common pocket tools (screwdrivers, wire hooks, etc.).
 - *Endurance (Cycle):* 100,000 up to 250,000.
- **Overlapping Electronic Tests:** Even though they have different end goals, both standards share a nearly identical suite of tests to verify the fundamental electronic safety and reliability of the devices. Examples include:
 - *Undervoltage & Overvoltage Tests:* Both standards ensure the device still operates safely and won't fail if the building's power supply dips or spikes.
 - *Electrical Transient Tests:* Both test to prove that power surges or lightning strikes won't fry the circuitry or cause a door to falsely unlock.
 - *Temperature & Dielectric Withstand Tests:* Both verify that internal components won't overheat and that electrical insulation is strong enough to prevent short circuits or electric shocks.

- *Endurance Testing*: Both require cycling electronics and hardware thousands of times to prove long-term reliability.
- **Can an opening require both? Yes.** A complete door opening can use both.
- **Allegation Example:** A Von Duprin electric strike might be listed to UL 1034 to prove it can't be kicked in. However, the Schlage card reader and the power supply operating that strike are listed to UL 294.
- **Single Product Overlap:** A product like a maglock with built-in delayed egress logic will often carry *both* listings—UL 1034 for its physical holding force, and UL 294 for its electronic access control circuitry.
- **Can UL294 Be Misapplied:** Yes. A good example of this is when AHJs request UL294 for electric strikes and will not accept UL1034. This is a common misapplication. Keep in mind UL294 has less stringent endurance requirements and strength testing and a UL294 listing of Level 1 across the board could be a less secure type of strike than one with the appropriate UL1034 listing.

3. Can I lock a door electronically if it will unlock when there's a fire? (Mark)

This is a common misconception that we battle all the time, and most of the time, the answer is “NO.” There are only three conditions that a door can lock and keep people from exiting through the door and unlock upon fire alarm.

The first is when it's permitted under the “Controlled Egress” section related to health care units where patients require containment for safety or security. We are keeping people from egressing through a door and we're doing it electronically. So the thing to remember about controlled egress, is it is very specific to what occupancies it's applied to. So even in the controlled egress section, it says what occupancies it's applied to, and it's an I occupancy and it's related to healthcare units where patients are required to be contained for their own safety or security. So those are the those are the reasons we're allowed to use controlled egress. (We'll be covering controlled egress in a future live with Lori session.)

The second is when permitted in the “stairwell reentry” section of the code. It's important to note that this covers what is normally the secure side of the door. When we talk about the stairwell reentry we're addressing a secondary egress route not the primary...the primary egress route would be to continue down the stairwell to the public way. If the stairwell is compromised this gives folks another path out of the building. If you want to lock a door on the stairwell side and keep people from getting onto the floor, we do that electronically. We tie that into the fire alarm or the fire command center.

A third application is when an elevator lobby door is locked electronically. In the 2024 IBC, we have the elevator lobby code to come into play. So if you are stuck in an elevator lobby

and previous to this, the elevator lobby wasn't even addressed in IBC. It was addressed in NFPA 101, like Lori said, but it wasn't addressed in IBC. So if we had an elevator lobby previous to IBC 2024, we had to treat it like any other room and we had to let people out of it. So if you imagine you're on the fifteenth floor of an office building and it's one o'clock in the morning and a fire alarm goes off and the elevator gets recalled to the first floor and I'm stuck inside of an elevator lobby, I have to be able to get out of that lobby. So previous to 2024, delayed egress was our answer to that. You had to have a delayed egress path out of that elevator lobby.

Other than these examples, it's not code-compliant to have an egress door locked electronically and unlock upon fire alarm activation.

4. Every reference you mentioned for UL two ninety-four and UL 1034 were all referenced out of IBC Chapter 10 and NFPA 101 Chapter 7. Is there any reference to UL 294 and/or UL 1034 if the doors are not in a means of egress, for example, connecting doors between a classroom. (Lori)

Both of those chapters are related to the means of egress. In NFPA 101, the language is a little bit different, and the requirements apply to doors that are required egress doors. In the IBC, it's different. It says that the requirements apply to doors that are required for egress and also to doors that are provided for egress purposes. For example, if a hotel ballroom has four doors, but only two are required for egress, all four of the doors have to be compliant if they are all provided for egress purposes.

That would apply to all of the means of egress requirements - panic hardware, door size, door swing, etc. As far as UL294 and 1034 references to doors not in a means of egress, no, there's nothing specific about that. But the important thing to start with is if you're looking at a door you have to figure out is this door required for egress, or is it provided for egress purposes? If it's not provided for egress purposes, then basically the code requirements don't apply. But be very careful because when code officials come along, they might disagree with you as far as whether that door is provided for egress purposes.

Doors between classrooms are often not provided for egress purposes. The door might be provided for convenience and so that's why a door between classrooms can often be locked in a way that you wouldn't be able to lock it if it was part of the means of egress. But be careful on larger size classrooms because the occupant load could calculate out large enough to require a second exit (50 people or more), and the door between the classrooms might be the second exit and need to be code-compliant.

5. What is the best place to check if a product is listed to UL294 or 1034? Where can I find the most up-to-date official information? (Matthew)

The Bottom Line: Printed spec sheets get outdated quickly, so the absolute best place to check is the live, online directory of the Nationally Recognized Testing Laboratory (NRTL) that evaluated the product. In our industry, that usually means checking either **UL Product iQ** or **Intertek's ETL Listed Mark Directory**. Both are official real-time databases used by inspectors to verify compliance.

The Details:

- **The NRTL Concept:** It's a common misconception that only UL can test to UL standards. Because UL 294 and UL 1034 are ANSI (American National Standards Institute) standards, *any* OSHA-recognized testing laboratory can test and certify to them. Intertek (ETL) and UL are the two most common in the hardware industry, and their listings are legally and functionally equivalent.
- **UL Product iQ:** Product iQ | UL Solutions
 - *What it is:* UL's official, online database (requires a free account).
 - *How to search:* You can search by manufacturer (e.g., Allegion, Schlage), model number, or the UL standard.
 - *Pro-tip:* UL organizes these by Category Control Numbers (CCNs). UL 294 products are under **ALVY**, and UL 1034 products are under **CVXY**.
- **Intertek's ETL Directory:** Intertek ETL Listed Directory
 - *What it is:* Intertek's free, public online directory for products bearing the ETL mark.
 - *How to search:* Very similar to UL, you can search by company name, standard (type "294" or "1034"), or product description. It will clearly show which ANSI/UL standards the product was tested against.
- **Why these live databases matter:** If a product's listing is suspended, modified, or updated to a newer edition of the standard, it reflects in these databases immediately. Building inspectors and AHJs (Authorities Having Jurisdiction) will often pull these directories up on their phones or tablets during a walkthrough. If the product isn't actively listed in one of these two databases, it risks being rejected in the field.

6. What function does a request to exit switch play in an opening with access control? (Mark)

In most cases, the RX switch or "request to exist switch" is part of the opening for only one reason. As part of the door monitoring system it works to shunt the door position switch, so that every time the door opens, the door position switch doesn't tell the access control system that someone has forced the door open.

Let me break this down a little... when we write an access control opening, we have several components to make the opening complete. There can be more “bells and whistles” added but these are the basics:

- The power supply – required for electrical stuff to work.
- Conductors – wires, power transfers, ETC. – required to get the power to all the electrical stuff.
- The electric locking device - kind of self-explanatory whether it’s an electric strike, electric lock, electric panic, mag lock, ETC...the piece locks the doors and unlocks the door by receiving electrical power.
- The door position switch - this device monitors whether the door is open or shut.
- The access control switch – Card reader, keypad, key switch, biometrics, ETC...this is the device on the outside that controls the locking device and allows entry.
- The request to exit switch – Can be a motion detector or a micro-switch triggered by turning a lever or pushing in a panic bar...its main function is to let the access control system know that someone has properly egressed (for example: by pushing in a panic bar)

A lot of people think that the RX switch is controlling egress and in most cases this is not true...in fact there are only two cases where the RX switch controls egress: Sensor release (where the RX switch is the “sensor” and typically mounted above the opening) and door hardware release (where the RX switch is located in the hardware that’s mounted to the door...typically a panic bar). In all other types of openings the RX switch does not control egress.

7. In the industry, we have been using the term access control system to describe various types of doors with electrified hardware. Is this term defined in the IBC? (Lori)

The term access control system isn’t currently defined in the model codes, but it’s on my wish list for the next edition. I think it would really help to have a definition because in the industry we often use access control to talk about all types of electrified hardware, so we need to separate access control systems that only affect access or ingress from other types of doors that have access control readers. For example, a sensor release door with an electromagnetic lock could have an access control reader but wouldn’t be the type of access control door that I talked about today. As a start, the IBC Commentary has a lot of information about access control doors to help differentiate them from other types of electrified hardware.

8. UL 1034 lists 'Static' and 'Dynamic' strength for locks — what do those ratings mean in real-life use, and how hard are the tests? (Matthew)

The Bottom Line: "Static" evaluates resistance to steady pressure, like a burglar prying a door with a crowbar. "Dynamic" evaluates resistance to a sudden impact, like someone kicking or ramming the door. These ratings provide measurable, standardized proof of a lock's physical resilience, translating theoretical security into real-world capabilities.

The Details:

- **Why both are needed:** A lock might have a strong latch that holds against a slow, heavy pull (Static), but the internal cast-metal components might fracture under a sudden, violent shock (Dynamic). UL 1034 tests both to ensure complete physical integrity.
- **Static Strength (Steady Pull):**
 - *The Test:* The test equipment pulls/pushes on the lock with a steady, horizontal force for a full minute.
 - *The Ratings:* 500, 1,000, or 1,500 lbs. of force.
 - *Real-life:* Simulates someone using a pry bar, a jack, or putting their back into pulling a door open.
- **Dynamic Strength (Sudden Impact):**
 - *The Test:* UL swings a **100-pound solid steel ram** on a pendulum directly into the door. They don't just do it once; the lock must survive **5 consecutive impacts**.
 - *The Ratings:* 33, 50, or 70 foot-pounds of force.
 - *Real-life:* Simulates a burglar kicking the door, hitting it with their shoulder, or using a battering ram.
- **The 85% Voltage sections (Simulating Power Drops):** Both the Static and Dynamic tests are actually performed *twice*. After passing at full power, the lock is energized at only **85% of its rated voltage** (simulating a brownout or voltage drop over a long wire run). The lock is then tested again and must withstand 85% of its rated physical force (e.g., a 1,000 lb static lock must hold 850 lbs, and a 50 ft-lb dynamic lock must withstand 42.5 ft-lbs of impact). This proves the lock won't easily fail just because the building's power dips.
- **Bonus - The Tool Manipulation Test:** UL 1034 also includes a test where an expert operator gets 5 minutes to try and pick, pry, or manipulate the lock open using common pocket tools (screwdrivers, wire, hooks).

9. Are the terms "Special Locking Arrangement" and "Normal Locking Arrangement" found in the building code? (Mark)

I wish! If we had this defined in IBC it would make our jobs of code interpretation much easier. The term “Special Locking arrangement” does appear in NFPA 101 and this section in NFPA 101 contains many of what we consider “Special Locking Arrangements.” I jokingly say that all the Special locking arrangements are “SPECIAL” because each one has its own section in IBC... (Sensor Release, Door Hardware Release, Delayed Egress, Controlled Egress, Stairwell Reentry, and Elevator Lobby Egress (and coming soon in 2027 - Interlocks).

And anything that’s not “Special” is a “Normal Locking Arrangement,” meaning we can egress mechanically without any electrical assistance, no special knowledge or effort, one releasing motion, no tight grasping, pinching, or twisting of the wrist, and mounted between 34 and 48 inches AFF. Actually “normal locking arrangements” do have their own section now (IBC 2024) it’s just called “Monitored or recorded egress and access control systems.”

10. UL 294 has Levels I–IV. What do those levels mean, and how should I use them when choosing door hardware? (Matthew)

The Bottom Line: The tiered system prevents a "one size fits all" approach. It allows architects, specifiers, and security directors to scale their hardware to the actual risk profile of the facility. You can specify cost-effective, Level I hardware for low-risk interior doors, while mandating Level IV military-grade encryption and physical toughness for critical infrastructure.

The Details:

- **The 4 Categories:** Products are graded across four performance pillars: Destructive Attack, Line Security (encryption), Endurance (cycles), and Standby Power (battery backup).
- **Level I (Basic):** No attack test required, no encryption required, 1,000 cycles, no battery backup. *Best for: Interior office doors, supply closets, or employee break rooms.*
- **Level II & III (Mid-to-High):** Introduces physical attack tests (2 to 5 minutes), standard to 128-bit encryption, 25,000 to 50,000 cycles, and up to 2 hours of battery backup.
- **Level IV (Maximum Security):** Withstands a 5-minute physical attack (with an alarm that cannot be silenced), requires 256-bit AES encryption, tested to 100,000 cycles, and demands 4 hours of battery backup. *Best for: Exterior perimeters, server rooms, pharmacies, or government facilities.*

- **Mixing Levels:** A product doesn't have to be Level IV across the board. A reader might be Level IV for Line Security (highly encrypted) but Level I for Destructive Attack (because it's plastic and easily smashed). Specifiers should look at the specific category ratings based on what the door needs.

11. You mentioned that the door hardware release and sensor release sections apply to maglocks - why wouldn't these sections apply to electromechanical locks? (Lori)

The section for door hardware release applies to locks released by a sensor detecting a building occupant approaching the door, and the door hardware release has a switch inside of the door-mounted hardware to release an electrified lock. These sections typically apply to mag-locks, although they could apply to another type of lock – like a powerbolt – if it was released by a sensor or switch. Electromechanical locks are usually released for egress by turning the lever – not via a sensor or switch. So electromechanical locks would usually fall into the access control category that I covered in today's session.

12. Access control is moving to IT networks (PoE, mobile, cloud). How has UL 294 kept up with those modern technologies? (Matthew)

The Bottom Line: UL 294 is not a stagnant, outdated standard. The latest editions have aggressively evolved to bridge the gap between physical security and IT. It has added massive sections specifically addressing Power over Ethernet, smartphones, and cybersecurity to ensure that putting access control on the corporate network doesn't introduce fire hazards or digital vulnerabilities.

The Details:

- **PoE (Power over Ethernet):** Section 35.7 explicitly covers PoE. It ensures that network switches (Power Sourcing Equipment) and edge devices (Powered Devices) can safely push up to 100 watts of DC power over standard Cat5e/Cat6 cables without causing overheating or fire hazards in the walls.
- **Mobile Credentials:** Section 37 covers "Electronic Authentication." It regulates using smartphones, Bluetooth, NFC, and wearables as keys. It requires strict data encryption (up to 256-bit AES) to prevent hackers from cloning or spoofing a digital badge.
- **Cloud & Remote Management:** Section 35.8 covers remote access. It mandates cybersecurity features like 15-minute idle timeouts and lockout after 5 failed password attempts.

- **Firmware Updates:** It mandates that remote, cloud-based firmware updates must use an "integrity confirmation." If the internet drops during an update, the lock won't "brick" itself or fail open; it must safely revert to its last known secure state.

13. How will I know when it will become an option to use UL 1034-listed products in my jurisdiction (Phoenix)? (Lori)

UL 1034 is permitted as an alternative to UL 294 in the 2024 editions of the model codes, so once these editions are adopted in a jurisdiction, UL 1034 is an option unless the adopted code is modified to remove this reference. I just took a quick look at UpCodes and it looks like Phoenix has already adopted the 2024 IBC, and I see the references to UL 1034 there. As long as the most recent Phoenix code is the one on the building permit, products listed to UL 1034 should be acceptable.

14. Both standards deal with keeping doors secure. How do they make sure people can still get out safely in an emergency? (Matthew)

The Bottom Line: Building codes universally dictate that getting people *out* safely during a fire is always more important than keeping bad guys *out*. Both UL 294 and UL 1034 have strict, non-negotiable mandates to ensure electronic locks immediately provide free egress during fire alarms, and power outages. Life safety always overrides security.

The Details:

- **UL 1034 (The Locks):** Sections 58 & 59 explicitly state that electric locks must *not* impair the operation of panic hardware or emergency exits. They must allow free, uninhibited egress.
- **Residual Magnetism (UL 1034):** For maglocks, UL tests for "residual magnetism." After being energized for 24 hours, when power is cut, the lock cannot remain "sticky." The door must open with no more than 4 pounds of force so people aren't trapped by lingering magnetic fields.
- **UL 294 (The System):** Section 69 governs "Controlled and Delayed Egress" with very strict rules:
 - **Fire Alarm Tie-in:** The door must unlock *immediately* (within 2 seconds) if the fire alarm or sprinkler system is activated.
 - **Power Loss:** The system must "fail-safe"—meaning if the building loses power, the door automatically unlocks to allow escape.
 - **Irreversible Time Limits:** If it's a delayed egress door, pushing the panic bar for 3 seconds must initiate an *irreversible* countdown. It can only delay a person for

a maximum of 15 (or sometimes 30, with AHJ approval) seconds before permanently releasing.

15. For recorded or monitored egress, would a hardwired alarm in an exit device require UL 1034 or 294? Or would it be considered as readily openable as it will open, but the alarm will sound?

In my opinion, the hardwired alarm would not require the listing because this section of the code does not require the UL 294 or UL 1034 listing. The door is readily openable for egress, and the purpose of the alarm is just to monitor the door, so the section of the code addressing Monitored or recorded egress, and access control systems is the correct section to apply (with no requirement for the listings).