

NFPA 72 on Access Control

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From the well-known blog idighardware.com by Lori Greene, D&H is pleased to bring you a new column on codes—DECODED!

Someone brought this to my attention yesterday and I thought there had to be a mistake. I was handed a slide from a recent presentation on NFPA 72—National Fire Alarm and Signaling Code, which said that all exit doors with access control had to unlock upon actuation of the fire alarm. I checked the 2007 edition and sure enough, there it was:

NFPA 72—2007:

“6.16.7.1 Any device or system intended to actuate the locking or unlocking of exits shall be connected to the fire alarm system serving the protected premises.

6.16.7.2 All exits connected in accordance with 6.16.7.1 shall unlock upon receipt of any fire alarm signal by means of the fire alarm system serving the protected premises.”

This could easily be interpreted to mean that every exit door with any type of access control (card reader, keypad, etc.) would have to unlock upon actuation of the fire alarm. Obviously, this would present a problem from a security standpoint if “unlock” was interpreted as unlocking for ingress as well as egress. Exit doors with mechanical locks (operated by a key) aren’t required to unlock upon fire alarm and allow ingress, and most exit doors have to allow egress all the time—not just during a fire alarm. Not to mention that many locks used in access control systems allow free egress all the time.

I checked with NFPA and I was told that *“under this provision every exit that has access control would require unlocking by the fire alarm system, unless the AHJ or other codes state otherwise.”*

That’s Not Good.

Luckily, a code change proposal was submitted, and the 2010 edition of NFPA 72 contains revised language which clarifies the intent:

NFPA 72—2010:

“21.9 Electrically Locked Doors.

21.9.1 Any device or system intended to electrically lock a required means of egress door in the direction of egress shall be connected to the fire alarm system serving the protected premises.

21.9.2 Electrically locked doors in a required means of egress shall unlock in the direction of egress as prescribed by other laws, codes, and governing standards.”*

There’s additional information in

Annex A of NFPA 72—2010:

“A21.9.2 Doors are commonly locked for various security reasons. Though doors are permitted to be locked to prevent ingress, doors are generally not permitted to be locked to restrict egress unless specifically permitted by governing laws, codes, and standards. Examples of special locking arrangements include delayed-egress locking and access control locking. Approved locking requirements by governing laws, codes, and standards can vary extensively. For

example, some might require all fire alarm initiating devices to immediately unlock electrically locked egress doors, while others might permit such doors to remain locked when a single manual fire alarm box is activated. Some codes might also permit electrically locked doors to remain locked when a single smoke detector has activated. These allowances are typically permitted only in sprinklered buildings and are generally used as additional safeguards to counter efforts to breach security, without compromising occupant safety."

The 2010 edition also clarifies the use of battery back-up on electrically-locked doors:

"21.9.3 For all means of egress doors connected in accordance with 21.9.1, and where batteries are used in accordance with 10.5.6.1.1.(1) as the secondary power supply, the batteries shall not be utilized to maintain these doors in the locked condition, unless the fire alarm control unit is arranged with circuitry and sufficient secondary power to ensure the exits will unlock within 10 minutes of loss of primary power."*

21.9.4 Locks powered by independent power supplies dedicated to lock power and access control functions, and that unlock upon loss of power, shall not be required to comply with 21.9.3.

21.9.5 If means of egress doors are unlocked by the fire alarm system, the unlocking function shall occur prior to, or concurrent with, activation of any public-mode notification appliances in the area(s) served by the normally locked means of egress doors.

21.9.6 All doors that are required to be unlocked by the fire alarm system in accordance with 21.9.1 shall remain unlocked until the fire alarm condition is manually reset."

And from **Annex A:**

"A.21.9.3 A problem could exist when batteries are used as a secondary power source if a fire alarm control unit having 24 hours of standby operating power were to lose primary power and be operated for more than 24 hours from the secondary power source (batteries). It is possible that sufficient voltage would be available to keep the doors locked, but not enough voltage would be available to operate the fire alarm control unit to release the locks."

In summary, the language in the 2010 edition of NFPA 72 helps to clarify the requirements for the interaction of the fire alarm system and doors with access control. The revised language is specific to unlocking "in the direction of egress," so this section does not require the doors to allow free access/ingress through the door. This does NOT mean that it's acceptable to lock doors in the direction of egress and release them upon fire alarm—it's

simply addressing locking scenarios allowed by other codes. For example, delayed egress locks are allowed to prevent egress in certain occupancies for 15 seconds as long as all of the requirements are met. NFPA 72-2010 states that those devices have to be connected to the fire alarm system and shall unlock in the direction of egress. That's much clearer than the previous edition.

There will still be lingering questions about the use of battery back-up, but NFPA 72-2010 does help explain the intent. When a secondary power supply uses batteries, the batteries can't control the locks unless the fire alarm will unlock the locks within 10 minutes after the loss of primary power. If we think about delayed egress as an example again, in theory the delayed egress lock would still function correctly during that 10-minute period, so egress is not compromised. Although the 2010 edition of NFPA 72 has not yet been adopted in many jurisdictions, these changes may help to illustrate the code's intent to an AHJ or others.

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