

## International Building Code: Electromagnetically Locked Egress Doors

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From the well-known blog [idighardware.com](http://idighardware.com), Lori Greene brings some much-needed clarity to codes.

**A**N ELECTROMAGNETIC LOCK IS BASICALLY AN

electromagnet mounted in an enclosure on the frame head, with a steel armature mounted on the door. When the door is closed and the magnet is energized, the magnet bonds to the steel armature and locks the door. In order to allow access or egress, the magnet must be de-energized.

Prior to the 2009 edition of the *International Building Code*, the section called “Access-Controlled Egress Doors” was typically applied to doors with mag-locks. This section allows the use of mag-locks on doors in certain occupancies and requires the mag-locks to be released by a motion sensor, emergency push-button, power failure,

and activation of the fire alarm or sprinkler system. The 2009 edition includes an additional section called “Electromagnetically Locked Egress Doors” (1008.1.9.8), which



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also can be used for doors with mag-locks, depending on the type of release device that is desired. Either set of requirements can be used going forward, depending on the application.

The new section applies to doors with mag-locks that are released by door-mounted hardware, such as a lockset or panic hardware with a request-to-exit (RX) switch. There was some confusion about the language in the 2009 IBC because the proposed language was modified by the technical committee to limit the use of mag-locks to doors that didn't require panic hardware. I spoke to one of the engineers at the ICC about whether the intention was to prevent the use of mag-locks on doors with panic hardware, and I have since received the revised language for the 2012 edition of the IBC. The phrase regarding panic hardware has been removed from the 2012 edition and a clarification added (#5), so this section would be applicable to doors that require panic hardware as long as the switch in the panic device releases the mag-lock.

Here is the section from the 2009 IBC (shown in red), with the modifications from the 2012 IBC (shown in blue):

#### **1008.1.9.8 (1008.1.9.9 in the 2012 edition)**

**Electromagnetically locked egress doors. Doors in the means of egress that are not otherwise required to have panic hardware in buildings with an occupancy in Group A, B, E, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, M, R-1 or R-2 shall be permitted to be electromagnetically locked if equipped with listed hardware that incorporates a built-in switch and meet the requirements below:**

- 1. The listed hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.**
- 2. The listed hardware is capable of being operated with one hand.**
- 3. Operation of the listed hardware directly interrupts releases the power to the electromagnetic lock and unlocks the door immediately.**
- 4. Loss of power to the listed hardware automatically unlocks the door.**
- 5. Where panic or fire exit hardware is required by 1008.1.10, operation of the listed panic or fire exit hardware also releases the electromagnetic lock.**

This section allows the use of a lockset or panic device with an integral switch to be used instead of a motion sensor and emergency push button. Note that the mag-lock is not required to release upon activation of the fire alarm/sprinkler system. There are a few remaining questions, though:

- 1. It's unclear how the use of a panic device to release a mag-lock is affected by UL 305 (the UL standard for panic hardware).**
- 2. Not all RX switches will meet item #4, although judging from the IBC Commentary, this type of product would be acceptable in this application. Perhaps the requirement to unlock upon power failure should pertain to the mag-lock itself, rather than the door-mounted release device.**
- 3. Section 1008.1.10 still says that doors in certain occupancy types/occupant loads shall not be equipped with a lock or latch unless it's panic hardware. Technically, this should have been changed to reflect the use of a mag-lock released by a panic device.**
- 4. I-2 occupancies were added to the Access-Controlled Egress Door section as an acceptable occupancy type, but they were not added to the Electromagnetically Locked Egress Door section. This seems like an oversight.**
- 5. I was wondering how the AHJs would feel about the lack of a fire alarm release, so I checked with a handful, and most of them were comfortable with it, especially since NFPA 101 contains very similar language.**

If your jurisdiction is using NFPA 101 *The Life Safety Code*, a new section was added in the 2009 edition called "Electrically Controlled Egress Door Assemblies" (7.2.1.5.5). The requirements are basically the same as the new section of the IBC but without the mention of panic hardware or the limitations on occupancy type.

Keep in mind that state or local requirements could differ from those of the IBC or NFPA 101, so it's important to be aware of the codes in your project's jurisdiction. Refer to the published codes for the detailed code requirements, and consult the Authority Having Jurisdiction for more information about the local codes. 