MEANS OF EGRESS

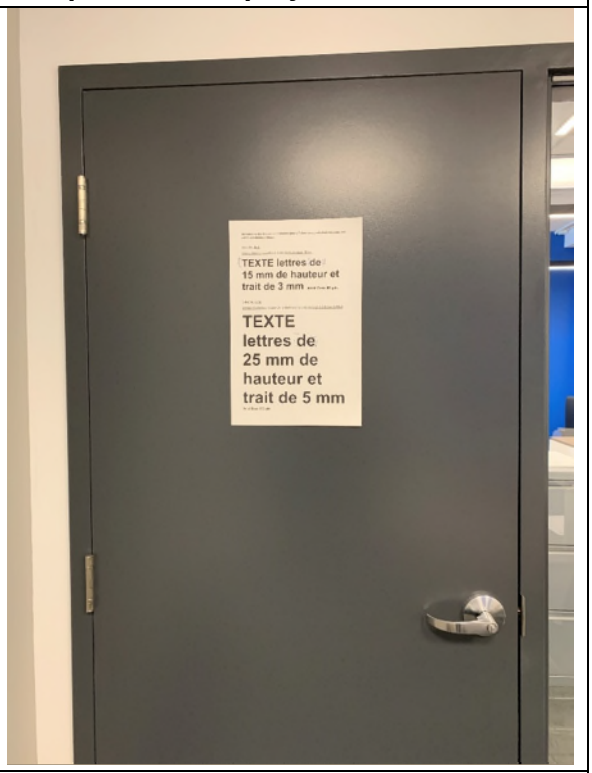
Common Myths and Mistaken Beliefs to Avoid

Appendix 1 : 3/15 S Locking Devices Design

Electromagnetic locks that do not incorporate latches, pins or other similar devices to keep the door in the closed position are permitted to be installed on exit doors other than doors leading directly from a *high-hazard industrial occupancy* **in compliance with Sentence 3.4.6.16.(4), provided:**

Conditions	**Comments to validate if this option is adequate for the project**
a) the building is equipped with a fire alarm system;	The entire building shall be equipped with a fire alarm system.
b) the locking device releases upon actuation of the fire alarm signal transmitted by the building's fire alarm system*;*	If the building is equipped with a single fire alarm system, upon actuation of the manual station, a fire detector or sprinklers, all the doors equipped with this type of mechanism will be unlocked. **Is it a bit like leaving the key under the doormat!** So, when there is a 3/15 s lock, it is better to provide a 2-stage system and to validate the cost to modify the existing system. Please note that a 2-stage fire alarm system involves a surveillance brigade, which could considerably increase the operational costs.
c) the locking device releases immediately upon loss of power controlling the electromagnetic locking mechanism and its associated auxiliary controls;	Is there an emergency power supply with enough time to maintain the mechanisms locked, as soon as there is a loss of power controlling the doors, the latter shall promptly open in the sense of the exit? The solution is the accumulator (battery) integrated to the device.
d) except for locking devices installed in conformance with Sentence (5) (locking devices with manual red fire alarm activation), the locking device releases immediately upon actuation of a manually operated switch	Where is the “authorized personnel”? The installation of the locking mechanism involves the installation of the manually operated switch elsewhere in the building.

Conditions	Comments to validate if this option is adequate for the project
readily accessible only to authorized personnel;	For the locking devices with (red) manual fire alarm activation, the conditions will be more demanding.
e) except as permitted by Sentence (6) (3 s time lapse), the locking device can be released by a force of not more than 90 N applied to the door opening hardware that initiates an irreversible process that will release the locking device within 15 s and not relock until the door has been opened;	Several mechanisms exist and meet these requirements. To understand that Sentence (6) permits that the release of the locking device shall be delayed of more than 3 seconds, within 15 seconds for the opening of only one door of the *means of egress*, provided that the **visual signal** informs the occupants that they shall push on the opening devices during at least 3 seconds. Therefore, a false operation on the device does not necessarily involve the opening of the door if the person stops to push the opening hardware. Also, this type of equipment generally includes an audio warning, as the suppliers design their equipment according the NBC, IBC or NFPA 101. If your client does not accept the presence of audible alarm, you will have to consider another scenario compliant or address an alternative solution.
f) upon release, the locking device must be reset manually by the actuation of the switch referred to in Clause (d);	If the mechanism is at the monitoring station, the personnel may remotely reactivate the mechanism. If the device is located on the storeys of the impeded doors, the staff shall move to manually reactivate. The door shall not automatically unlock; a manual control is required.
g) the exit door has a **permanent legible sign** in letters at least 15 mm high with lines at least 3 mm wide, in contrasting colours, indicating that the locking device will release within 15 s of applying pressure to the door-opening hardware;	The sentence shall be written on the door or on the 3/15 s device is often proposed by the manufacturer of the device. The text is often bilingual (French and English).

Conditions	Comments to validate if this option is adequate for the project
	
h) where an occupant is required to actuate more than one unlocking device during evacuation in any egress path, all unlocking devices on the path shall release within not more than 15 s;	**How are the same devices in the evacuation travel distance connected?** Careful analysis of evacuation egress path and methods of installation must be validated to ensure that the occupant is delayed only once in the evacuation.
i) the operation of a bypass switch installed for the purpose of testing the fire alarm system releases an audible and visual signal on the annunciator of the fire alarm system and in the monitoring station mentioned in Sentence 3.2.4.8.(4), and	Alarm systems must be tested annually. During these tests, to prevent the door from being unlocked, the bypass switch makes it possible to avoid unlocking, subject to a visual and audible signal on the annunciator of the alarm system and for the monitoring station. This method of operation is standard on systems with this bypass switch type.
j) an emergency lighting system is installed on the doors.	Article 3.2.7.3. indicates that emergency lighting shall be provided to an average level of illumination not less than 10 lx at floor level in different rooms. Is the device

Conditions	Comments to validate if this option is adequate for the project
	already covered by an emergency lighting or shall it be added?

Finally, not to forget the following two conditions:

- Locking devices permitted shall conform to the test requirements prescribed in CAN/ULC-S533, "Egress Door Securing and Releasing Devices. [**3.4.6.16.(8)**]
- Door hardware for the operation of the doors referred to in this Section shall be installed at a height not more than 1 200 mm above the finished floor. [**3.4.6.16.(9)**].

by Nicole Olivier, Architect