MEANS OF EGRESS (EXIT) HARDWARE REQUIREMENTS

Town of Brighton
Office of the Fire Marshal

October 2018

Means of Egress (EXIT) Hardware Requirements

Purpose

All exit doors shall be easily opened from the interior without the use of a key, combination, or any special knowledge or effort.

One simple, single motion shall open the door.

If the door is equipped with a deadbolt, the bolt must release with the same motion that opens the door knob or latch. No chains, bolts, bars, etc. are allowed.

Scope

Buildings or portions thereof shall be provided with a means of egress system as required by 2015 Fire Code of New York State. The provisions of Chapter 10 shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof. Sections 1003 through 1030 shall apply to new construction. Section 1031 shall apply to existing buildings.

Applicability

In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in places of religious worship, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:

Additionally, if key operated deadbolt type of lock is employed, a permanent, durable sign must be posted over the door stating **“THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED**".

If the door served by this deadbolt type lock has two doors or leaves, the flush bolts on the other door must release with the keyed deadbolt. Flush mounted barrel bolts and latches on the edge of the door are prohibited.

Rational

In the event of a fire or emergency, people must not be trapped inside a building because of a special lock or security device. Whenever the building is occupied, a person shall be able to walk to any exit door and easily, without a special knowledge or effort, open the door and exit to a public way.

This rule also applies to the rear doors of stores and offices as a person may be trapped between the fire and the front door, and thus the need to exit from the rear door.

The sign, **THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED**, shall be posted over the main exit door as a reminder that if the exception to no special knowledge or effort hardware is utilized, the door must remain unlocked when the building is occupied.

Definitions

Exit: That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives as required to provide a protected path of egress travel between the exit access and the exit discharge. Exits include exterior exit doors at ground level, exit enclosures, exit passageways, exterior exit stairs, exterior exit ramps and horizontal exits.

Main Exit: Defined as the main entrance to the building.

Means of Egress: A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.

No-Knowledge Hardware: A latch or other fastening device on a door that is provided with a knob, handle, panic bar, lever, pull, push pad or other simple type of releasing device, the method of operation of which is obvious, even in darkness

Panic Hardware: Door latching assembly incorporating a device which releases the latch upon application of a force in the direction of exit travel. Such device must be a minimum of one-half the width of the door in length. No more than 15lbs. force required to operate.

2015 Fire Code of New York State

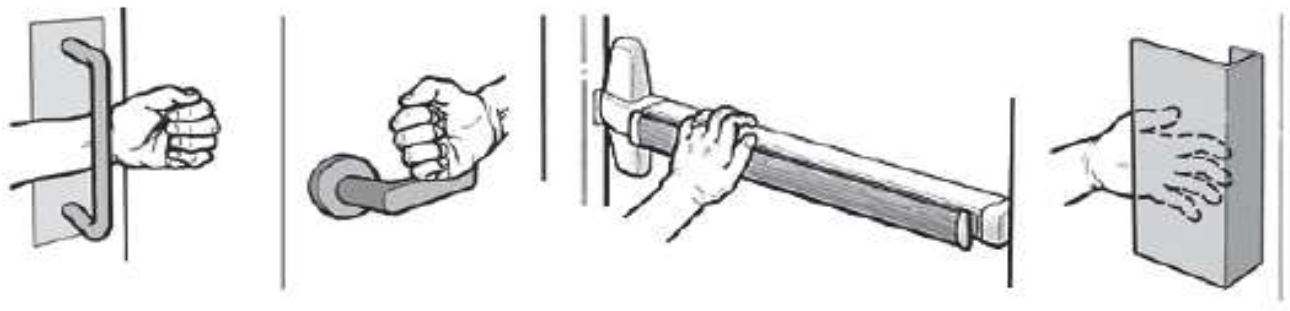
§ F1010.1.9.1 Hardware. Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate.

Any doors that are located along an accessible route for ingress or egress must have door hardware that is easy to operate by a person with limited mobility or dexterity.

Some people with disabilities are unable to grasp objects with their hands or twist their wrists. This requirement is also an advantage for persons with arthritis in their hands. Items such as small, full-twist thumb turns or smooth circular knobs are examples of hardware that is not acceptable.

Such people are unable to operate, or have great difficulty operating, door hardware other than lever-operated mechanisms, push-type mechanisms and U-shaped door pulls. Door hardware that can be operated with a closed fist or a loose grip accommodates the greatest range of users.

*Items such as small, full-twist thumb turns or smooth circular knobs are examples of hardware that is **NOT** acceptable.*



1010.1.9.2 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

The requirements in this section place the door hardware at a level that is usable by most people, including a person using a wheelchair.

§ F1010.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.

2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:

Exception 2 permits a locking device, such as a double-cylinder dead bolt, on the main entrance door. Such locking devices must have an integral indicator that automatically reflects the "locked" or "unlocked" status of the device. In addition to being an indicating lock, a sign must be provided that clearly states that the door is to be unlocked when the building is occupied.

2.1. The locking device is readily distinguishable as locked,

2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background,

The sign on the door not only reminds employees to unlock the door, but also advises the public that an unacceptable arrangement exists if one finds the door locked. Ideally, the individual who encounters the locked door will notify management and possibly the fire code official.

2.3. The use of the key-operated locking device is revokable by the code enforcement official for due cause.

Note that the use of the key-locking device is revokable by the fire code official.

3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.

4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.

The locking arrangement is not permitted on any door other than the main exit and, therefore, the employees, security and cleaning crews will have access to other exits without requiring the use of a key.

This allowance is not limited just to multiple-exit buildings but also to small buildings with one exit. This option is an alternative to the panic hardware required by Section 1010.1.10.

§F1010.1.4.3 Horizontal sliding doors. In other than Group H occupancies, horizontal sliding doors permitted to be a component of a means of egress in accordance with Exception 6 to §F1010.1.2 shall comply with all of the following criteria:

1. The doors shall be power operated and shall be capable of being operated manually in the event of power failure.

2. The doors shall be openable by a simple method from both sides without special knowledge or effort.

3. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion and 15 pounds (67 N) to close the door or open it to the minimum required width.

4. The door shall be openable with a force not to exceed 15 pounds (67 N) when a force of 250 pounds (1100 N) is applied perpendicular to the door adjacent to the operating device.

5. The door assembly shall comply with the applicable fire protection rating and, where rated, shall be self-closing or automatic closing by smoke detection in accordance with Section 716.5.9.3 of the International Building Code, shall be installed in accordance with NFPA 80 and shall comply with Section 716 of the International Building Code.

6. The door assembly shall have an integrated standby power supply.

7. The door assembly power supply shall be electrically supervised.

8. The door shall open to the minimum required width within 10 seconds after activation of the operating device.

All eight of the criteria listed in this section must be met for a special purpose horizontal sliding, accordion or folding door since there is a concern that it must be able to be easily opened to the minimum required width under all conditions.

Additionally, the door must be openable even if a force of 250 pounds (1100 N) is being applied perpendicular to it, as may occur if a group of people were pushing on it.

1010.1.9.8 Sensor release of electrically locked egress doors. The electric locks on sensor released doors located in a means of egress in buildings with an occupancy in Group A,B, E, I-1, I-2, I-4, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 are permitted where installed and operated in accordance with all of the following criteria:

The intent of this section is to provide consistent requirements where an electronically locked door is unlocked by activating devices mounted somewhere other than on the door itself.

1. The sensor shall be installed on the egress side, arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.

The unlocking activation is designed to be from a passive action by the occupant (e.g., walking to the door triggering a sensor),but the system includes a required nearby manual unlocking device (such as a push button) as a secondary electrical lock release device.

These sensors typically operate on an infrared, microwave or sonic principle, but other technologies may be available. This sensor is required to automatically release the electrical lock on approach of an occupant from the egress side or when there is a loss of power to the sensor.

2. Loss of power to the lock or locking system shall automatically unlock the doors.

Item 2 states that if there is a loss of power to the electrical lock or to the locking system, the electrical lock on the door must unlock. These doors are commonly secured with fail-safe devices which prioritize life safety over security (such as electromagnetic locks or fail-safe power bolts) so that the electrical locks on these doors will automatically unlock when power to the electrical locking device or locking system is interrupted.

3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads “PUSH TO EXIT.” When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of other electronics—and the doors shall remain unlocked for not less than 30 seconds.

When operated, the manual unlocking device is to directly interrupt, independent of other electronics, the power to the electrical lock and cause the doors to remain electrically unlocked for a minimum of 30 seconds. To achieve a minimum 30-second delay independent of other electronics, the push button unlocking device should be designed and installed to provide this delay. The 30-second minimum is to allow adequate time for an individual to operate the manual unlocking device and then to egress through the door.

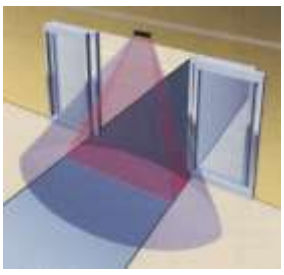
4. Activation of the building fire alarm system, where provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.

5. Activation of the building automatic sprinkler system or fire detection system, where provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.

Items 4 and 5 require the building fire alarm system, automatic fire detection system or sprinkler system, if provided, to be interfaced with the door’s electric locking system to unlock automatically on activation. The electrical locks on the doors are to remain unlocked until the fire alarm system is reset, ensuring egress is not impeded by the electric locking system.

6. The door locking system units shall be listed in accordance with UL 294.

Item 6 requires the units of the locking system to be listed to UL 294. The UL 294 Access Control System standard applies to construction, performance, and operation of systems which control passage through a door, and electrical, electronic, or mechanical units of these systems.



§F1008.1.8 Door operations. Except as specifically permitted by this section egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

§F1008.1.8.2 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

§F1008.1.8.6 Delayed egress locks. Approved, listed, delayed egress locks shall be permitted to be nstalled on doors serving any occupancy except Group A, E and H occupancies in buildings that are equipped throughout with an automatic sprinkler system in accordance with §F903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with §F907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.

2. The doors unlock upon loss of power controlling the lock or lock mechanism.

3. The door locks shall have the capability of being unlocked by a signal from the fire command center.

4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for 1 second to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released by the application of force to the releasing device, relocking shall be by manual means only.

   Exception: Where approved, a delay of not more than 30 seconds is permitted.

5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.

6. Emergency lighting shall be provided at the door.