

HIGH-SPEED DOORS AND EGRESS

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In designing a path of egress for a building, there may be instances in which a high-speed door becomes a component of the path. This article explains how high-speed doors can be used as a means of egress, or exit, by describing options, code guidance, and specification guidance.

Key aspects of high-speed doors

A high-speed door is a non-swinging door with a minimum opening rate of 32 inches per second, a minimum closing rate of 24 inches per second, and a means to automatically reclose the door. These doors typically act in a rolling, folding, or sliding manner.

High-speed doors are typically non-fire-rated and thus should only be used in walls that are also non-fire-rated. High-speed door panels and curtains can be made from rubber, fabric, vinyl, composites, aluminum, or steel.

High-speed doors are most commonly used in factories and in institutional, mercantile, and storage buildings, where environmental separation, energy efficiency, and/or security are required. They are not generally used in public assembly, educational, high-hazard, residential, and utility/miscellaneous occupancies. When used as a component of egress, high-speed doors can accommodate motorized equipment, traffic, and pedestrians.

What is egress?

The International Building Code (IBC) defines “means of egress” as “a continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way.”

NFPA 101, known as Life Safety Code, defines “means of egress” similarly as “a continuous and unobstructed way of travel from any point in a building or structure to a public way.” Both the IBC and NFPA 101 describe a means of egress as consisting of three separate and distinct parts: the exit access, the exit, and the exit discharge.

Situations requiring egress

Generally, emergency situations in which occupants need to evacuate a building require

a means of egress. For example, fires and/or hazardous conditions that can jeopardize the health, safety, and/or welfare of building occupants require a safe path for egress.

High-speed door egress options

When installing a high-speed door as a component of a required means of egress, DASMA recommends that at least one of the following options be employed:

- 1. Manual operation through door counterbalancing:** The door should be easy to open from either side of the opening without special knowledge or effort. The force required to operate or set the door in motion should not exceed 30 pounds and should not exceed 15 pounds to open the door to the minimum required height and width for egress. Manual operation can include chain hoist, crank, or gripping points.
- 2. Breakout panels:** The door panels should be easy to break out manually in the event of power failure. The force required to break out the door panels should not exceed 30 pounds, and the force required to push open the door panels to the minimum height and width for each egress opening should not exceed 15 pounds.
- 3. Backup power supply:** The door assembly should have an integrated standby power supply and be electrically monitored. The door assembly should open to a minimum height of 80 inches and a minimum width of 32 inches, within 10 seconds after activation. It should stay open until full power is resumed. A backup power supply as a stand-alone option is subject to approval.
All parameters and requirements are outlined in IBC Section 1010.1.4.3.

Justifying an egress option

If one of the three egress options is applied, reasoning must be provided. Occupancy type, space, door type, material, and doorway design should be referenced.

To be exempt from the rating requirements in the IBC and NFPA 101, the architect,

engineer, designer, or building owner must prove that the high-speed door is not fire-rated and that it is being installed in a non-fire-rated wall.

International Building Code (IBC) content

The IBC does not address high-speed doors specifically. However, there are sections within it that can be applied to high-speed door installations as an egress component. A code official, using the IBC as reference, would need to review the section data and information applied. To demonstrate compliance with the IBC, applicable code content would need to be cited.

NFPA 101 content

NFPA 101 also does not address high-speed doors. For these applications, code officials using NFPA 101 could invoke Section 1.4, titled “Equivalency,” and/or the subsections “Technical Documentation” and “Equivalent Compliance.” This requires technical documentation demonstrating equivalency to a conventionally operating door. To be recognized as compliant, the intended purpose must be established as an equivalent system, method, or device.

Steps to remember

For a high-speed door to be an egress component, architects, engineers, designers, and building owners should do the following:

- Confirm that a high-speed door is needed at the location.
- Distinguish the type(s) of egress design.
- Consider the users of the door from within the building (private versus public) and provide necessary signage.
- Ensure that the door is a usable door.
- Include all relevant “entrapment protection” devices, which includes any device protecting people from being caught under a closing door.

Conclusion

High-speed doors serve a valuable and important function in a building. The size and speed of these doors would allow a large amount of people to exit a building quickly and could potentially save many lives. ■