

Double-Egress Pairs in a Healthcare Occupancy

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Smoke barriers are designed and constructed to restrict the movement of smoke and are used to subdivide a building into smaller smoke compartments. In healthcare facilities, patients can be moved from one smoke compartment to another to be protected by the smoke barrier until they are able to be evacuated.

The *International Building Code* (IBC) requires smoke barriers to have a one-hour fire-resistance rating, with the exception of steel smoke barriers in Group I-3 buildings (detention and correctional occupancies). According to the IBC table entitled “Opening Fire Protection Assemblies, Ratings, and Markings” (Table 716.5 in the 2015 edition), a one-hour smoke barrier is required to have a 20-minute-rated door, which is tested and certified to provide protection for a minimum of 20 minutes.

There is an IBC exception regarding smoke barrier doors that has to be one of the most confusing and widely debated door-related sections in the code. In the 2015 edition, Section 709.5 Exception 1 exempts smoke barrier doors in some healthcare occupancies from the requirements that apply to smoke barriers in other locations. The occupancies in the exception are Group I-1 Condition 2 (buildings where there are people receiving care who require limited verbal or physical assistance in order to evacuate), Group I-2 (including hospitals, nursing homes, psychiatric hospitals, foster care facilities, and detox facilities), and ambulatory care facilities. These occupancy types were modified in the 2015 edition.

In these locations, smoke barrier doors are not required to be fire door assemblies. The

exemption from the fire rating applies to pairs of “opposite-swinging doors” installed across a corridor—commonly called double-egress pairs. The 2015 edition of the IBC clearly states that these doors are not required to be protected in accordance with Section 716. In other words, they are not required to be opening protectives, also known as fire door assemblies. Previous editions of the IBC did not specifically state this.

The doors are required to be automatic-closing, actuated by smoke detection, and “close fitting within operational tolerances.” Louvers, grilles and center mullions are not allowed, and undercuts are limited to $\frac{3}{4}$ inch. The frame must have stops at the head and jambs, and the doors must have astragals at the meeting edges or rabbeted meeting stiles to help slow the spread of smoke. These doors are also required to have a vision panel with fire-protection-rated glazing in fire-protection-rated frames.

By adding the requirements related to clearances, glazing, and automatic-closing devices, the code has taken a door without a fire label and turned it into a door that likely will behave like a 20-minute door. And what about positive latching, which is a requirement for fire doors? The 2003 and 2006 editions of the IBC specifically state in this section: “Positive-latching devices are not required.” In the 2009 edition, this was changed to: “Where permitted by the door manufacturer’s listing, positive-latching devices are not required.” But if these doors are not fire-rated, what “listing” is the code referring to? This section also limits the glazing: “the area of which shall not exceed that tested.” Again, what test?

The 2015 edition of NFPA 101 requires doors in this location to be “substantial doors, such as nonrated 1¾-inch thick, solid-bonded wood-core doors, or shall be of construction that resists fire for a minimum of 20 minutes.” Other requirements include the following:

- ▶ Protective plates of any size without a listing are permitted.
- ▶ A pair of swinging doors or a horizontally sliding accordion door or folding door assembly may be used.
- ▶ Swinging doors must be double-egress pairs—each leaf swinging in the opposite direction.
- ▶ The minimum clear width of swinging doors ranges from 32 inches for a 6-foot corridor to 41½ inches for an 8-foot corridor (consult NFPA 101 for sliding door requirements).
- ▶ Clearance at the bottom of the door is limited to ¾ inch.
- ▶ A single door is allowed if the door is not in a required means of egress from a healthcare space.
- ▶ Doors must be self-closing or automatic-closing.
- ▶ Latching hardware is not required.
- ▶ Head and jamb stops are required on the frame.
- ▶ The meeting edges must be rabbeted, beveled or equipped with astragals.
- ▶ Center mullions are prohibited.
- ▶ Vision panels are required, consisting of fire-rated glazing in approved frames, with the bottom of at least one vision panel in each leaf at a maximum height of 43 inches above the floor.

While NFPA 101 is clearer and does not include some of the conflicting language that is currently in the IBC,



Photo courtesy of Lori Greene

Smoke barrier doors in certain healthcare facilities are addressed by an exception in the IBC, which allows non-fire-rated assemblies but mandates certain qualities to help ensure protection of the patients.

questions remain. Why are healthcare occupancies exempt from the requirements for 20-minute doors and positive latching that must be supplied for openings in other smoke barrier locations? Why do the codes remove the requirement for a label and then describe almost all of the requirements for a fire door assembly?

A healthcare occupancy is a location where the protection of a fire door assembly is most needed, as many occupants may not be able to evacuate. Latching hardware is readily available that can interface with the fire alarm to provide convenience under normal operation and latch automatically upon fire alarm actuation.

A change proposal has been submitted for the 2018 edition of the IBC that would bring back the rating and latching requirements, so we’ll see how this plays out during the code development hearings. For now, labels and latches are not required to meet the IBC and NFPA 101 requirements. ■



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