

Howard Talks Tech

What you need to know about fire doors and exit hardware

The main means of passive fire protection in buildings is to enclose areas with fire barriers. Fire barriers include walls, ceilings, floors and fire doors. Barriers play an important role in managing a fire by stopping the spread of smoke, toxic gasses, and fire from one zone to another. The Life Safety Code has strong regulations about fire doors because of their importance as passive fire protection devices.

Fire doors are fundamental to the integrity of barriers because if there is an opening, the fire barrier is broken. To minimize the break, fire doors must be self-closing have latching devices that provide resistance to the spread of fire, smoke, and toxic gasses. A labeled door must be hung on steel bearing-type hinges.

Not all doors are fire doors: Fire doors are composed of a combination of materials, including steel, gypsum and other fire-resistant materials. Fire doors must be certified by a recognized testing laboratory (such as UL) and must have the laboratory's certification label affixed to the frame and the door. Some fire doors are equipped with windows, which must also be certified. Fire doors must meet the requirements of ***NFPA 80, Standard for Fire Doors***



When are Fire Doors needed?

- Where a door has an EXIT sign on or above it
- Where a door leads to exit stairwells and horizontal exits
- Where a door leads to a hazardous area such as boiler rooms or flammable storage areas

Fire Door Ratings: Steel fire doors are “rated” by time (in minutes or hours) that a door can withstand exposure to fire test conditions. Hourly ratings include 1-1/2-hours, 1-hour, 3/4-hour, and 1/3-hour, with the maximum rating required of any side-swinging type fire door being 3 hours. Doors are selected based on three-fourths of the rating of the surrounding wall: A 3-hr door is used in a 4-hr rated wall; a 1-1/2-hour fire door is used in a 2-hr rated wall; and a 3/4-hour door is used in a one-hr rated wall.

Fire exit doors must be side hinged. If a door is held open, (wedges) for the convenience of employees, it creates a significant fire hazard for all occupants because of the break in the fire barrier. OSHA regulations require that fire doors not be blocked open, [29 CFR §1910.36 (a) (3)]. Doors that are designated to be fire exit doors can **only** be held open by electromagnetic release devices because they are the only hold-open devices which will close quickly enough to prevent the passage of the toxic gases and smoke. The building must be equipped with a smoke alarm system to trigger the door release. Sprinkler activation must also release the doors.

Even when closed, fire doors should never have their latch taped over; during a fire, hot gases can easily build up enough pressure to cause fire doors to blow open. Hardware for fire doors can be either fire or panic. “Panic hardware” can be “dogged” open allowing free passage, such as on exterior building doors. Panic hardware capable of being dogged is not permitted on interior fire exit doors which must re-latch upon closing.

Based on *NFPA 80, Standard for Fire Doors* (2007 edition), documented inspections for fire-rated door assemblies are now required. Chapter 5.2.1 states “Fire door assemblies shall be inspected and tested not less than annually, and a written record of the inspection shall be signed and kept for inspection. Who is responsible for the maintenance and care of fire-rated door assemblies? Responsibility rests solidly on the shoulders of the building owner. Owners will have to decide if, when, and what corrective actions will be taken; otherwise they will run the risk of being cited for violations or worse risking a suit for failure to maintain proper enclosures. NEVER, ever lock a fire door from the inside with chains or other egress preventing means.

These talks are distributed with the hope that they spark some dialog. Feel free to use them as the basis for a tool box talk with your colleagues, clients, safety committee members or employees..