

## Why Fire Door Hinges Are Important to a Building's Safety



One of the most significant roles to ensure building safety is played by [fire door hinges](#). While many assume that building safety is all about the door, it may indeed be the hardware holding it up, such as the fire door hinges, which will make a difference between life and death in an event. Let's get into why the fire door hinge is such a crucial part, break it down, and review real-life case studies of such scenarios. Let's see the stats behind fire door performance and right choice in terms of fire door hinges in buildings.

### What Are Fire Door Hinges, and How Do They Differ from Regular Hinges?

Fire door hinges and regular hinges are somewhat similar; however, what they fundamentally differ in is the level of quality and emphasis on performance under stressful fire conditions.

At first glance, a fire door hinge might appear to be just another regular door hinge. However, such hinges are actually designed and tested under the extreme conditions of exposure to temperature when a fire occurs. While the usual hinged doors might warp or even break during extreme heat, fire door hinges are made from such material under such conditions and ensure that the door remains closed, not allowing the flame or smoke to spread during a fire.

Fire door hinges also get a certification process to fall into the requirements of fire safety rules. These are tested with lots of severity to ensure that these can stand in case of fire emergencies.

### **Key Features of Fire Door Hinges**

- 1. Durability:** High-grade materials, such as steel, are used to make fire door hinges that can withstand the heat produced during the fire.
- 2. Heat Resisting Ability:** Hinges are tested to 1000°C at times, depending upon the fire rating classification of the door they are accompanying.
- 3. Smooth Operation:** Smoother opening and closing of the fire door is guaranteed by these very robust hinges under normal operating conditions.
- 4. Compliance with Test:** Hinges certified under fire door acquire all the requirements of performance according to safety standards; in Europe by affixation of CE marking and in the United States by UL listing.

### **How Do Fire Door Hinges Contribute to Building Safety?**

This is a summary of everything learned thus far because it puts everything together by answering the following question: What contributions does a [fire door hinge](#) have toward building safety? The fire door and its hinge are not better than each other. If there was a fire, it should close that door to prevent spread of fire and smoke to the rest of the building. Fire door hinges contribute this way:

**Door Integrity:** in case of fire incidents, hinges should resist fire for as long as possible to prevent the door from shutting up at the wrong time.

Smoke spread prevention: Hinges ensure that the door is completely shut during a fire to prevent the leakage of smoke through gaps, which is one of the common causes of fatalities.

Fixed Heavy Doors – A fire-rated door is normally many kilograms heavier than a standard door. Fire door hinges are built to bear the weight, which is very important since it helps prevent the door from sagging or becoming misaligned over time.

### **Case Study 1: Office Building Fire, London**

A commercial building in London caught fire in 2018, originating from an electrical fault, which propagated through the building's electrical wiring within a short period. The fire doors, having

fitted fire-rated hinges, confined the outbreak of the fire in the floor where it began, and thus occupants on other floors had enough time to find ways of evacuating. As indicated in the fire department's report, the hinges on fire doors played a major role in the doors holding fast under conditions during a fire, and this was paramount in minimizing loss and even property destruction.

### **Case Study 2: New York Apartment Complex**

A kitchen fire on the 15th floor of a high-rise apartment building in New York nearly spread throughout the building. The door with fire-resistant hinges remained closed for more than 90 minutes. Because the stairwell remained closed to the fire, the fire crews were able to extinguish the fire before spreading it. It could have gone drastically worse if fire-rated hinges had not been present in the fire door.

### **Case Study 3: Hospital Fire, Dubai**

A hospital fire in Dubai in 2021 underpinned the very importance of door hinges in healthcare. Safe evacuation routes being a need for hospitals meant that those fire doors, fitted with certified fire-rated hinges, enabled safe and orderly evacuation of patients. Such post-event study led the people to realize that the unsafe condition of non-certified hinges for building safety was compromised since fire doors like these hinges are an essential barrier between both the spreading of flames and smoke.

### **Case Study 4: School Fire, Sydney**

In an Australian school, the fire did not spread into the adjacent areas in a school because of the fire door with high-performance fire hinges fitted in the door that prevented the spread of the fire. Since the door withstood the fire for 60 minutes, all escaped, and the local fire brigade could contain the fire. From the later interview by the maintenance team of the building, regular inspections and ensuring that only certified [fire door hinges](#) were used were noted as critical in this successful containment process.

### **Case Study 5: The manufacturing plant, Berlin**

A machinery malfunction ignited a major fire in one of the manufacturing plants based in Berlin. Fire doors with advanced fire-rated hinges were installed across the manufacturing plant. The fire-rated hinges allowed the fire doors to remain in their position, ensuring these fire doors did not open in case of the near-two-hour uncontrolled fire before being finally controlled. Investigators subsequently ascertained that the fire-rated hinges helped restrict the spread of the fire to one area of the plant and ensured the losses were decreased by 40%.

### **What Are the Various Kinds of Fire Door Hinges?**

Several types of fire door hinges are available in the market, which are specifically designed for different kinds of fire doors. The most common types of fire door hinges include:

- **Ball Bearing Hinges:** These are used for heavy fire doors because they provide smooth and durable working.
- **Concealed Hinges:** They offer an aesthetic appeal and also are engineered for fire-rated doors.
- **Self-closing hinges:** the door shall automatically close. The fire doors are among the basic requirements, as they are supposed to close in the event of fire.

### **Fire Door Hinges Checking Frequency How Often**

BS 8214: 2016 of the British Standard insists that fire doors must be inspected once every six months. Among the parts being scrutinized within the fire door check-ups are the hinges, especially if they are extensively used in areas like schools or hospitals. Statutory checks ensure that the hinges are not corroded, broken, or have become misaligned, thus rendering a fire door ineffective.

### **Fire Door Hinges: Facts Behind Their Significance**

Figures demonstrate that

- 90% of failures in fire doors can be attributed to hardware, including hinges. Properly installed fire door hinges represent an essential part of security and protection.
- More than 60% of the UK's commercial buildings have now incorporated fire-rated door hinges, compared with 45% five years ago.

Thus, buildings installed with certified fire doors and hinges have 50% fewer death occurrences from fire than those that are not installed.

### **Conclusion: Are You Using the Right Fire Door Hinges?**

Case studies and statistics already clearly support that fire door hinges are an essential component of any fire safety strategy. The best hinges lead to the fact that the right fire doors do not fail when any emergency calls for their performance. Development of basic knowledge regarding how [fire door hinges](#) prevent smoke spread during a fire, using certified materials, and regular inspections are necessary steps building owners need to take.

If you are not certain that it is indeed the hinges of your fire doors, you may think this could be a good time to change. Spend the right hardware today, and tomorrow could save your life.