

## Fire Doors – Barrier Against Fire

Fire doors are an important part of any fire protection system. Fire doors are installed to provide a barrier against the passage of flame and heat through wall openings.

Properly installed and maintained fire doors help guard against total loss should a fire occur. They also can be a key factor in saving lives by confining a fire and protecting the path of escape for the occupants of a building. Many types of fire doors are available to meet virtually any need.

Whether an overhead rolling, tin clad or hollow metal sliding, or swinging type of door is selected, it should be installed in accordance with the manufacturer's instructions. It should conform with its specified listing. (See Figures 1 through 4 for typical fire door arrangements.) For maximum protection and reliability, doors as well as frames and hardware should be tested and labeled by a nationally recognized testing laboratory such as Underwriters Laboratories Inc.

Once properly installed, the effectiveness of a fire door depends on good maintenance which results from regular inspections. Inspections should include the checking of clear path, release mechanisms, closing devices, physical damage repairs, maintenance and testing procedures.

### Clear Path

Closing weights should be protected or boxed in to keep impediments from interfering with proper fire door operation. Stock or equipment should never be placed in the door opening.

Piling materials against the door when it is either open or closed should be avoided. (Fire doors are not intended or constructed to hold back a fire which is immediately against them.) Substantial wood or metal door guards should be installed where necessary to prevent stock piling against the doors.

Guides for overhead rolling doors should not be crimped or damaged by material handling equipment. This is also true for binders on other types of doors. Doors should never be wedged or propped open. When it is necessary to keep the door open, a fusible link or an electromagnetic hold open device should be provided.

### Release Mechanisms

If a fusible link is used, it should be rated at 165° F in order to help ensure the most rapid operation possible in the event of a fire. The fusible link should not be painted, since doing so will raise its operating temperature or prevent separation of the element. Multiple links are desirable on each side of the protected opening, with at least one located near the ceiling (6 to 12 inches). Fusible links are needed on both sides of the fire wall.

Electromagnetic devices are most commonly released by activation of a smoke or heat detector. They can be set to release by activation of a manual fire alarm, water flow detector for a sprinkler system, or by activation of a carbon dioxide or other special extinguishing system. All detectors, including fusible links, should not be placed in the "Dead Air" space developed at the intersection of the wall and ceiling directly above the fire door. They should be located 6 to 12 inches below this intersection. If electromagnetic hold open devices are

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utilized, they should be cleaned and tested frequently. Fire doors protecting exit passages should be kept closed at all times or activated by smoke detection devices instead of fusible links.

### Physical Damage and Deterioration

Worn, rusted, corroded or otherwise damaged parts should be repaired or replaced as soon as possible. Guides, barriers, and other moving parts should be lubricated regularly. Original door equipment should not be replaced with lesser quality materials. Holes should not be drilled or punched in the door as these will reduce the fire resistance capability and may necessitate replacement of the door.

### Testing

All fusible link operated doors should be tested periodically by disengaging the fusible link from the link arm when the door is in the fully open position. Gravity or the closing weight should close the door and bind it solidly to the wall without rebounding. Doors activated by smoke detection devices should be tested by using smoke to activate the detector. Overhead rolling doors or guillotine type doors with concealed mechanisms should be tested and reset in accordance with manufacturer's instructions. Care should be taken that these doors do not fall so quickly as to endanger building occupants.

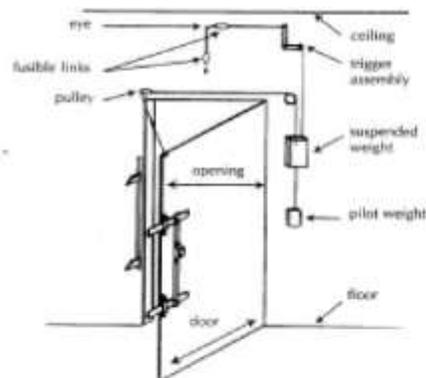


Figure 1. Closing devices for single swinging door

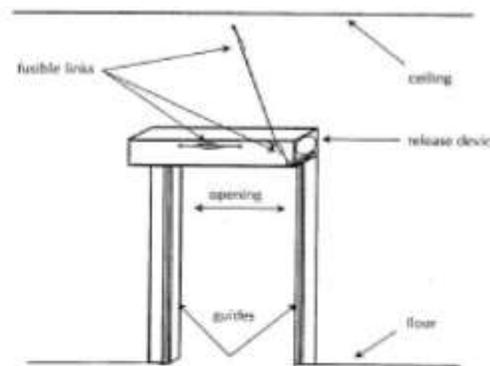


Figure 2. Closing devices for single rolling steel door

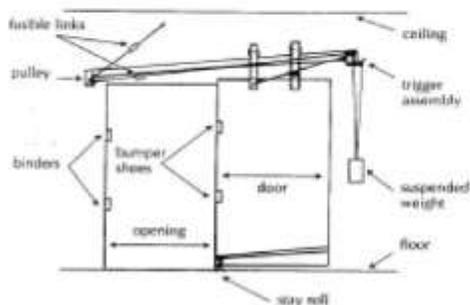


Figure 3. Closing devices for single sliding door (inclined track)

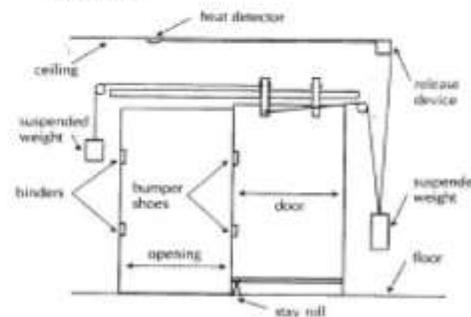


Figure 4. Closing devices for single sliding door (level track)

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