

FREEDOM TO ESCAPE

Adapted from an article by David Miller CPP M.I.S. (SA)
which was first published in Fire Protection, the organ of the Fire Protection Association of South Africa.

A fire escape is a door that can be easily opened by anyone, without special knowledge or equipment!

National Building Regulations and Building Standards Act 103 of 1977, T2 (2) states: *“Any person who causes or permits any escape route to be rendered less effective or to be obstructed in any way which may hinder or prevent the escape of any person from a building in the case of fire or other emergency shall be guilty of an offence.”* The act further states under TT19.5 *“ any access door or any other door, being a component of an emergency route shall be a hinged door which shall open in the direction of egress”.*

As we can see from these regulations there is a clear onus on building owners, operators and managers to ensure that escape routes and doors allow unobstructed escape and open outwards; what is also implied is that they must have approved and effective escape hardware. This probably applies to over 90% of the escape doors we will encounter in South Africa, (although in certain circumstances and conditions there are other recognized means of escape).

This article does not purport to be all encompassing, but deals primarily with normal escape doors that are found in most commercial and industrial buildings.



A typical up-market touch-bar panic latch-bar

Most premises will have one or more dedicated fire escapes or emergency exit doors, and these must all comply with the National Building Regulations and with SABS 0400 -1990.



A modern DETEX V40 Panic latch with built-in alarm
Various models available include monitored, with electric release, or weatherized for outdoor use

Until about thirty years ago, most panic bars were ugly, difficult to open, and harder to close. Many neglected, rusty and un-usable examples are still fitted on fire escape doors today, some even illegally fitted with chains and padlocks! These errors and omissions of safety and security standards are often also an indication that the doors are neglected and/or not tested regularly. Obstructions, and even fire hazards are often found in front of these doors!

WHAT IS REQUIRED?

Larger buildings

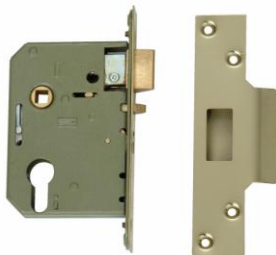
Where a building or an exit is designed for an occupancy of 25 persons or more, escape hardware must be 'operable by body-weight'. This implies using what is generally known as a panic bar, and is the most common acceptable form of escape. This requirement may also apply in smaller buildings or occupancies, where the processes undertaken, or the goods handled, present a greater than normal fire risk.

Panic bars and latches available today are user-friendly, easy to close and easy to open. Regular **panic bars with vertical rods (illustrated at right)** will lock the door at top and bottom, offering good security against outside attack. They are also used to lock the fixed (second-opening) leaf of pairs of double doors, to provide a stable object against which the moving (first-opening) leaf can lock.



Illustrated above is a typical panic latch that provides easy escape in an emergency. It is suitable for a single door, or for the moving (first-opening) leaf of a pair of escape doors. Being self-latching, it allows the door to lock automatically when closed.

Better panic hardware will reliably self-lock after being opened, provided it is used with the correct dual-action door closer (illustrated at right) such as the Dorma TS73 or Dorma TS83 (depending on door size).



Smaller buildings

In buildings designed for occupancies of less than 25 people, where there are no special fire hazards, a latch lock (left) fitted with a normal handle, or a thumbturn (shown at right) may suffice for escape, assuming that it is easy to operate.



Special considerations

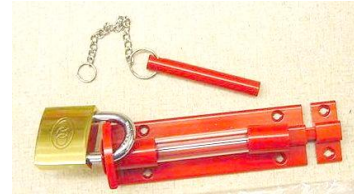


In certain circumstances local authorities will permit fail-safe electronic devices such as magnetic locks and fail-safe electric strikers for releasing fire and exit doors, provided these devices unlock automatically when power is

disconnected, or if wires are burnt or cut. They must be connected to the appropriate fire detection systems and NOT require human intervention. This is a relatively gray area not dealt with in this article, and local authorities should be consulted in every instance, at the planning stage.

What is NOT allowed on escape doors?

- Locks that require a key to open them from inside are not acceptable.
- Keys housed in boxes with glass fronts should never be used on any door which is a designated fire escape or is part of an escape route. (Testing has shown that even with the hammer in hand, most people cannot find the break-glass in the dark or smoky conditions!)
- Break-glass 'fire bolts' are not suitable for use in areas of public assembly.
- Any lock or device which requires a key or special knowledge to open should never be used on a fire or emergency exit door.



SAFETY VERSUS RISK CONTROL

Safety Managers will want to be sure that escape doors can open easily (usually by bodyweight activation) in the event of an emergency. In the case of double doors, both leaves must open in an emergency. They should want doors of the correct fire-rating for the risk/ occupancy, which close automatically after escape, to prevent the ingress of oxygen - which will fan the flames, and may disperse harmful smoke into the escape routes.



Security or Risk Control Managers would probably prefer the doors to be locked completely! Since this cannot be allowed, they will prefer good quality self-locking panic bolts, possibly with vertical bolts where practical, to protect against entry from outside. They will also want the correct door closers, to ensure that doors re-lock automatically after being used.



Security and Risk Control managers will want the doors to be monitored on a 24 hour alarm circuit, and possibly also want a local alarm for instant reaction. Detex EAX-500 alarm units with 96 Db sirens are available in flush or surface mount, as battery operated stand-alone units, or mains powered with battery backup.



Management may want the escape doors to be used for access control (i.e. doors between floors in an office building). Access from the outside is usually possible, without infringing regulations, by using:

- Standard latch-type keys, High security registered keys (requiring authorization for making keys).
- An electric striker in combination with the correct lock and latch bar will enable the use of Proximity tags, cards and biometric readers etc, either as stand-alones or in all the usual on-line roles.

Today, the needs of Safety and Risk Control personnel, as well as Management's need for access control, can usually all be met using equipment that is freely available, and without infringing on the fire regulations.

Making Risk Control Managers Happy

We cannot, and should not want to prevent people from escaping, but we can monitor escape doors using CCTV, and by alarming them. Every dedicated fire escape (i.e. not used for any other purpose) should always be monitored on a 24 hour circuit connected to the alarm monitoring station. In addition, fire escapes can be locally monitored (i.e. a loud alarm at the door) to prevent pilferage of valuable items during working hours, using alarmed exit devices such as the door-width Detex V40 series illustrated above, or the Detex ECL-600 (illustrated at right) for narrower doors. These have an internal 96 dB alarm, are available with internal 9-volt battery operation for stand-alone use, or in hard wired versions for external power and monitoring.



Specifying the right stuff

It is important to assess the risks, processes and number of people involved before deciding on fire doors. Doors need to be correctly hung and free-swinging from the fully-open to the fully closed position. When ordering certain fire doors, such as Class B, it is important to decide in advance what hardware will be fitted, since these doors will need to be manufactured with the appropriate 'lock block' to allow the mounting of locks, door closers and panic hardware.

As with most things in security, “goedkoop is duurkoop” and it definitely pays to have good quality doors properly hung, and fitted with good, durable escape hardware.

There is a challenge, and a great deal of opportunity in the market place, for those interested in the fitting of panic hardware! Perhaps we should be reminding our commercial and industrial clients of the severe fines and jail sentences provided by the Occupational Safety & Health Act, which would certainly be applicable if a person was injured or killed due to escape doors not working properly.

David Miller CPP M.I.S. (SA) has been involved with architectural ironmongery for over 40 years, and has made escape and exit hardware his specialty. He is a former chairman of SASA Cape Western Branch, the Locksmiths Association of SA (LASA) and of ASIS International Chapter 203: Cape Town. He serves on the Board of Governors of the South African Institute of Security (SAIS) and is an ironmongery consultant, based at THE LOCKSHOP in Paarden Eiland, Cape Town.

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