



Buyers Guide Electrically Controlled Emergency Exit Systems

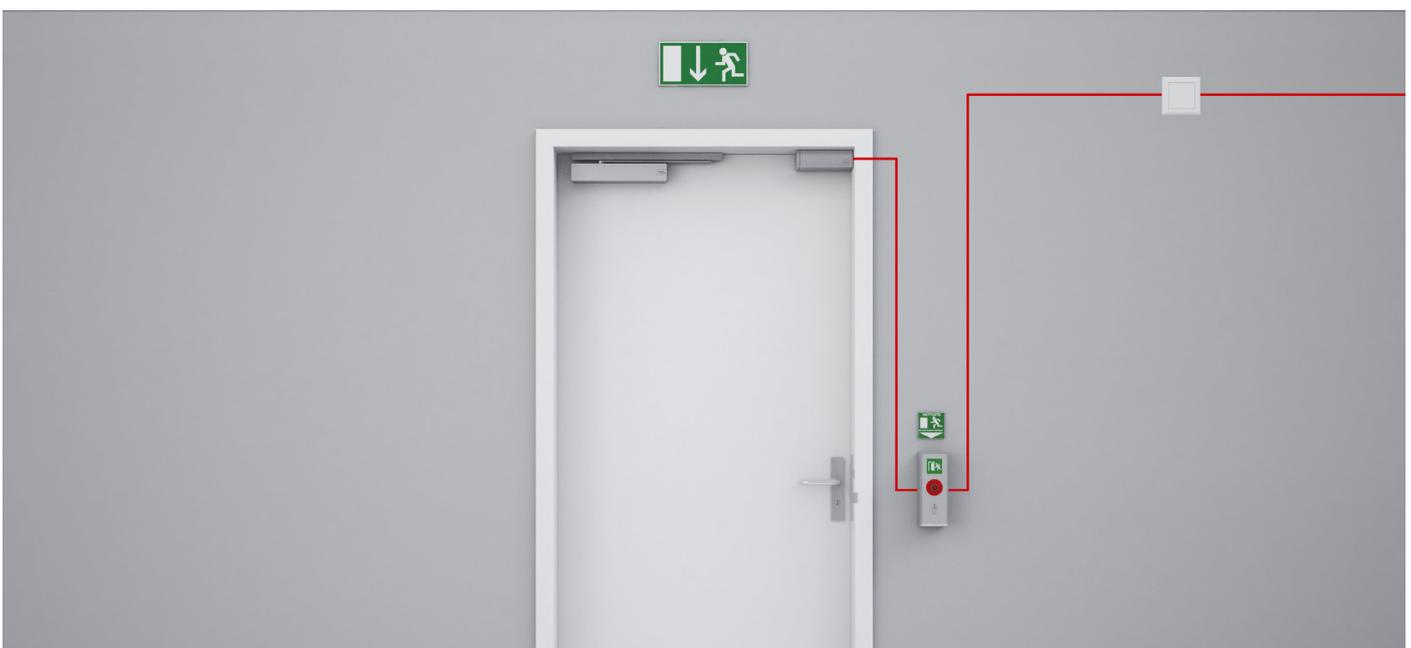
Electrically controlled emergency exit systems

For any building, safety and security in escape routes are of utmost importance. Architects, specifiers, building and facility managers all play a critical role in ensuring that these spaces not only meet safety regulations but also incorporate effective security measures.

Ensuring safe and efficient evacuation of building occupants in an emergency is of course essential. However, there is also a need to keep the building secure and prevent unauthorised access during normal use. Emergency exits can represent a weak point in the security strategy.

The basic emergency exit hardware that is commonly used is not suitable for all applications as these products do not offer the functionality required to meet the ostensibly conflicting safety and security needs. In contrast, electrically controlled, connected emergency exit systems can deliver the enhanced capabilities that building operators need to meet the specific needs of their building.

This guide highlights the challenges and complexities involved in achieving this delicate balance. It also provides an overview of how advanced escape route systems can be used to achieve the required levels of safety and security for different types of building, and the features to consider when selecting a solution.





Balancing safety and security

Ensuring the safety of all building users has always been vitally important, those responsible for a building are legally accountable for conducting fire risk assessments and maintaining escape routes through legislation such as the Regulatory Reform (Fire Safety) Order 2005. However, the events of recent years, including the Grenfell Tower fire, has increased the focus on building safety, with many building owners now aiming for a higher standard of life safety.

The doors that form part of an escape route often also serve to prevent unauthorised access. The typical solution to meeting both requirements is to use emergency escape locks with automatic self-locking mechanisms, meaning the door can be opened easily from the inside during an emergency situation, but locks again as soon as the door closes,

preventing unauthorised access from outside. However, this does not prevent misuse of the emergency exit, which can occur in many ways. For example, in a retail environment the emergency exit could be used as a getaway route out of the building for thieves, something that is currently a real concern as in 2023 crime figures for England and Wales show a 25% increase in shoplifting and a 10% increase in theft overall.

In some buildings, there may be a requirement to prevent people leaving a building for their own safety. For example, in care homes, hospitals and educational and child-care settings, the emergency exit is a potential way for vulnerable people to leave without supervision. This is particularly an issue for smaller buildings, such as nurseries where the main entrance door may form part of the escape route.

Types of emergency exit

There are different types of emergency exit door hardware and the one that is suitable will depend largely on the type of building and how it is used. The exit devices can be classified broadly by their compliance with three specific product standards.

1. BS EN 179 – Emergency exit devices

Products that meet this standard should only be used where the occupants are familiar with the layout of the building and the exits. In other words, the building is not accessed by members of the public. An example of this is a smaller sized office or other workplace where the occupants can be instructed on the use of the escape doors and undertake regular emergency drill practices.

2. BS EN 1125 – Panic exit devices

These escape route door products are designed for use where building users may be unfamiliar with the layout and escape routes and therefore there is a risk that panic will occur. Products that meet this standard should be utilised where the building is used by the public, including shops, entertainment venues, leisure facilities, public buildings, airports, and larger workplaces.

3. BS EN 13637 - Electrically controlled exit

systems for use on escape routes
Where an electrically controlled locking device is fitted to a door that forms part of an emergency escape route, there must be a door release system to ensure that evacuation is not hindered or prevented. BS EN 13637 provides the standard for this type of system.

It is important to note that this standard does not 'replace' BS EN 179 and BS EN 1125 when electrically controlled locks are used. The exit device must still meet one of these standards depending on the type of building. Both BS EN 179 and BS EN 1125 are referenced within BS EN 13637 and it states, for example, that where panic exit devices are required that the exit device should "give safe and effective escape through a doorway with minimum effort and without prior knowledge of the panic exit device."

In addition, in 2023, an amendment to BS 7273 Part 4 came into effect and it now directly references and aligns with BS EN 13637. BS 7273 is the code of practice for the operation of fire protection measures with Part 4 specifically covering the 'actuation of release mechanisms for doors'. The text of BS 7273 had previously caused uncertainty around implementing electronically controlled release mechanisms, which has been addressed in the amended version.



How an electrically controlled emergency exit system can help

This type of system allows doors secured with an electrically operated lock, such as a keycard based access control system, to be used as an escape route door as it provides a way for the user to release the door efficiently in an emergency.

These solutions help to overcome the challenges of balancing security and safety by providing additional security features. Depending on the system, these may include central control of the doors, delayed egress and alerts of door activation.

Key features to consider

When choosing an electrically controlled emergency exit system there are a range of factors that should be evaluated.

BS EN 13637 compliance

As the product standard for electrically controlled emergency exit systems, it is always recommended that any solution chosen meets this standard. However, it should be noted that BS EN 13637 is essentially a voluntary standard as it is not a designated standard in the UK, nor is it a harmonised standard in the EU. Therefore, products cannot be CE or UKCA/UKNI marked to the BS EN 13637 standard.

Despite this, choosing a BS EN 13637 compliant product is best practice and the best way to ensure occupant safety, robust security and peace of mind for those responsible for the building.

Application example



- 01 Central doors in escape route. In the event of alarm, doors can be activated from all control rooms.
- 02-04 Section doors in escape route. In the event of alarm, doors can be activated only through own or central control room.
- 01 Central control room
- 02-04 Section control rooms

Central control and real time alerts

Through a central management control (CMC) electrically controlled emergency exit solutions can allow building operators to view the status of each door connected to the system and lock or unlock individual or groups of doors remotely. It is also valuable to choose a system that enables real time alerts when an emergency exit is activated as this will provide a warning of unauthorised or non-emergency use of the door.

Flexibility of control

Another important factor to consider is the degree of flexibility in terms of the control of the doors to meet the specific needs of the building. For example, it may be worth looking for a solution that offers sectional as well as central control of the doors. In larger buildings this will allow more efficient and effective management of evacuation or access using a section control console.

Delayed egress

This feature allows a time delay between the user pressing the emergency exit button and the release of the door. This can help to prevent emergency exits from being used to enable theft as it allows security personnel to reach the perpetrator before they can leave. Similarly, in the case of children and vulnerable adults leaving unsupervised, the time delay means those caring for them have a window of time to locate them and prevent this from happening.

Solutions that feature a time delay have either a Grade 1 delay, which enables up to a 15 second delay, or a Grade 2 that allows either up to a 15 second or up to 180 second delay. The longer delays are generally only used in locations that require the highest level of security, such as power stations and other critical infrastructure facilities. All delayed egress functions can be overridden in the event of an emergency.

Grade 2 systems, which must have a central management control, can also include a denied exit mode to keep the door secured in a situation when the release of the door poses a safety risk to the evacuating occupants. This is primarily used for buildings with large capacities such as entertainment venues, sports stadiums, airports and other large public venues.

Integration with other building systems

Another consideration is how the emergency exit solution will integrate with other building systems. Firstly, it is important to look for a solution that will seamlessly connect to the building's fire detection system. This allows the escape route doors to be automatically released when a fire is detected. By releasing all the doors on the escape route as soon as the alarm is activated ensures that people can evacuate as quickly as possible without needing to initiate the release on each door in turn.

Simple installation and expansion

A further consideration when evaluating a solution is the installation and commissioning process, and in particular how simple the system is to retrofit. Key elements to look for include the connections required and what on-site configuration is needed. It may also be worth considering how the system can be expanded or adapted if the requirements of the building change.





Introducing SafeRoute

Streamlined Emergency Exit System for Varied Building Types

dormakaba's SafeRoute is a BS EN 13637 compliant emergency exit and escape route system that has been developed to meet the needs of many different building types and sizes. SafeRoute can be applied to single doors, groups of up to four doors connected to a single control unit, or as a network solution for larger buildings. It also includes the option to create an airlock system on an escape route where in normal use one door can only be opened if the other is closed and locked. In an emergency the doors are released to allow evacuation. This is ideal for applications where clinical hygiene is imperative, such as operating theatre entrances and clean rooms.

SafeRoute also integrates with fire detection systems as well as other parts of the building's security and access system, such as turnstiles and speed gates. This allows these elements to be released in an emergency to streamline evacuation further.

The modular SafeRoute system has a range of different components available to meet the needs of various building types. This includes two installation options for the emergency exit control, a compact all-in-one surface mounted terminal and individual flush mounted components for integration into the wall surface.

SafeRoute has been designed to enable easy installation and commissioning. All system components are connected using the simple 4-wire DCW® bus. The system's preconfigured parameters are suitable for many buildings to make commissioning straightforward, but further customisation can be made with the TMS Soft® door management software. In addition, the light ring status display on the door unit streamlines the setup and makes both operation and servicing easier.

The flexible subscription free licencing model of SafeRoute means it is suitable and cost effective for buildings of all sizes. The functions of the system are determined by the licence and application cards inserted into the SafeRoute Control Unit (SCU). Building operators can simply purchase the options that best meet their needs. If necessary, the system can be upgraded with additional functions by swapping the cards in the unit, with no need for hardware changes.



Solving building specific challenges with SafeRoute

SafeRoute can be used in a wide array of different situations to meet the specific needs of the building. Some key examples include:

Retail

In retail environments from small high street shops to large out of town stores, there is a risk that emergency exit doors can be used as an escape for shoplifters. SafeRoute offers functionality to help prevent this. In contrast to conventional door release mechanisms, SafeRoute provides the option to implement delayed egress, giving staff and security personnel the time to intercept shoplifters. The SafeRoute hardware also includes anti-tampering features and will alert the owner to tampering attempts.



Leisure and hospitality

In large buildings used by members of the public, such as hotels and music, sports and entertainment venues, swift and safe evacuation in an emergency can be a challenge. People will likely be in many different areas of the building and be unfamiliar with the layout and escape route. With SafeRoute, the emergency exit doors can all be released from the CMC or automatically when a fire is detected. It is also possible to lock particular doors to prevent people evacuating towards a hazard. In addition, SafeRoute can be integrated with motorised door operators to automatically open internal escape route doors for barrier free evacuation.



Workplaces

A potential issue in many workplaces is employees misusing the emergency exit doors as an alternative means to exit the building in a non-emergency situation. This not only potentially undermines the security of the building, especially if the door is wedged or propped open, but also has implications for fire safety. If a person leaves the building without the knowledge of his or her colleagues, they may be considered unaccounted for in the event of a fire. SafeRoute helps prevent this by ensuring that all use of the emergency exit doors is recorded and monitored.



Nurseries and care homes

For buildings such as nurseries and care homes, the safety of the building occupants relies on them being unable to leave unattended from emergency exit doors. The delayed egress functionality of SafeRoute means staff are alerted to an attempt to open the door and given time to reach the door to prevent the person leaving.



For small nurseries where the main entrance door also forms part of the escape route, it may be necessary to have different levels of access control throughout the day. SafeRoute makes this simple. During drop off and collection times, when the entrance is supervised by members of staff, the door can be configured to remain unlocked. Outside of these times the door is secured, with access restricted to staff with access rights, unless the fire alarm is activated.



Additionally, if the door remains open for 30 seconds after authorised access, a pre-alarm will be triggered with the main alarm activated after another 60 seconds. This ensures that those responsible for the building are alerted any time the door is used but the lock does not re-engage afterwards.

High security locations

In secured areas, such as staff areas of airports, an escape route may include a series of access controlled doors that must be released in an emergency. In this situation, standalone door releases can prove impractical and can slow the evacuation. In this situation, standalone door releases can prove impractical and can slow the evacuation. With the versatile central management system, SafeRoute enables a predetermined series of doors to be released to allow swifter evacuation but with final external door or exit into the public area still secured and released as needed.





Conclusion

In many buildings there is a need to balance quick and efficient evacuation in the event of a fire with the requirement to keep the building secured during normal operation. Electrically controlled emergency exit systems that comply with BS EN 13637, such as SafeRoute, provide building operators with the functionality they need to achieve both safety and security. However, it is important to choose a solution that delivers the flexibility to meet the needs of the building as well as a simple installation and commissioning process.

To find out more about SafeRoute and discuss how it can ensure safety and security for your facility, contact a member of our team on 01884 256464 or visit dormakaba.co.uk/saferoute.