

**Northern Ireland Fire & Rescue Service**  
**Fire Safety Legislation Advice Note 005**

**Door Release Mechanisms**

Version 2 – 19 March 2021

Mechanisms for unlocking and releasing doors are often used in buildings for convenience, accessibility and security. Guidance and recommendations on their use is detailed in *'BS 7273-4:2015 + A1:2021 - Code of Practice for the Operation of Fire Protection Measures: Actuation of Release Mechanisms for Doors'*.

The British Standard needs to be consulted to gain a detailed understanding of requirements for the design, installation, commissioning and maintenance of electrical control arrangements for actuation of mechanisms that unlock, release or open doors in the event of fire. It applies to all aspects of the interface between these mechanisms and a fire detection and alarm system, including interfaces that incorporate acoustic coupling and radio transmission.

*BS 7273-4:2015 + A1:2021* defines a release mechanism as a device, mechanism or arrangement which:

- a) holds open a self-closing door, but releases it on occurrence of a fire signal;
- b) secures a door, but causes it to unlock on occurrence of a fire signal; or
- c) causes a powered sliding door to open on occurrence of a fire signal

*NOTE: These actions can also occur in the event of circumstances other than a fire signal (e.g. a fault indication at the control and indicating equipment of the fire detection and fire alarm system).*

It should be noted that some of the requirements of *BS 7273-4:2015 + A1:2021* overrule parts of *BS 5839-1:2017 - Fire Detection and Alarm Systems for Buildings*, for example, the need for additional detection within a specified distance from a door release mechanism.

Three categories of actuation are defined by the ability of a system to fail safe:

Actuation Type	Description
<b>Critical Actuation (Category A)</b>	<ul style="list-style-type: none"> <li>▪ Fail-safe for any fault that affects ability to release in a fire emergency as well as any fault on the critical signal path or a power failure.</li> <li>▪ Actuates within 2 minutes in the event of a power failure of the fire detection and fire alarm system.</li> <li>▪ Radio actuated systems are permitted for this category provided actuates within 6 minutes in the event of failure of radio communication.</li> <li>▪ Acoustically actuated systems are not suitable for this category.</li> </ul>
<b>Standard Actuation (Category B)</b>	<ul style="list-style-type: none"> <li>▪ Fail-safe for any fault on the critical path signal or power failure.</li> <li>▪ Radio actuated systems are permitted for this category provided actuates within 120 minutes in the event of failure of radio communication.</li> <li>▪ Acoustically actuated systems might be suitable for this category.</li> </ul>
<b>Indirect Actuation (Category C)</b>	<ul style="list-style-type: none"> <li>▪ Fail-Safe for any fault on the critical signal path up to the interface with the access controller.</li> <li>▪ Radio actuated systems are permitted for this category provided actuates within 120 minutes in the event of failure of radio communication.</li> <li>▪ Acoustically actuated systems might be suitable for this category.</li> </ul>

### Acoustically Actuated Systems

Release mechanisms for electronically secured doors or powered sliding doors on means of escape should not be actuated by an acoustic signal.

Where acoustic signals are used for standard actuation of a release mechanism for electrically held-open fire doors, the design of the release mechanism should be such that the doors cannot be inadvertently returned to the held-open state when fire alarm sounders are silenced (e.g. as people open the doors during evacuation).

### Selection of Category

The selection of the most appropriate category of actuation for release mechanisms is in relation to the position of each door and is detailed in *BS 7273-4:2015 + A1:2021*, Tables B.1, B.2 and B.3, which are provided on the next page with NIFRS comments as the enforcing authority.

The tables give the categories of actuation that should be adopted in each of a number of particular circumstances:

- a) actuation for release of self-closing fire doors, Table B.1;
- b) actuation for release of electronically locked doors on means of escape, Table B.2;  
and
- c) actuation for release of powered sliding doors on means of escape, Table B.3.

Where the position of any door matches more than one description, for each of which a different category of actuation is recommended, the highest recommended category should apply.

<b>Table B.1 Selection of category of actuation for release of self-closing fire doors</b>		
<b>Location of door(s)</b>	<b>Category of actuation</b>	<b>NIFRS Comments</b>
1 In a compartment wall separating buildings	Critical (Category A)	In some circumstances, the use of electrically held-open doors might not be acceptable to NIFRS.
2 Forming part of the enclosures of any stairway in a hotel, boarding house, hall of residence, house in multiple occupation (HMO), hostel, residential care premises, a building containing apartments, a place of public entertainment or similar premises to any of the above (excluding hospitals)	Critical (Category A)	For hospitals, HTM guidance documents are appropriate.  If a corridor is not separated from the stairway by a fire door then the corridor will also form part of the stairway enclosure.
3 Forming part of the enclosures of a stairway that is the only stairway serving a building (or part of a building) which has more than one storey above or below the ground storey (other than in dwellings)	Critical (Category A)	-
4 Forming part of the enclosures of a stairway that forms part of means of escape (other than stairways described in items 2 and 3 and stairways in dwellings)	Any	In the case of Indirect (Category C) actuation, only if the critical signal path, and any wiring from non-fire alarm control equipment to the release mechanisms, fails safe.
5 Forming part of the enclosures of a fire-resisting lobby to stairways described in items 2 to 4 inclusive	Any	In the case of Indirect (Category C) actuation, only if the critical signal path, and any wiring from non-fire alarm control equipment to the release mechanisms, fails safe.
6 Subdividing corridors	Any	-
7 Any fire door in a dwelling, other than within the staircase enclosure of an HMO and a flat entrance door in a building containing flats	Any	-
8 Flat entrance doors in a building containing flats (e.g. sheltered and extra care housing)	Critical (Category A)	In general needs blocks of flats, hold-open devices are commonly regarded as unacceptable. However, hold-open devices (usually of the swing-free type) are sometimes fitted to flat entrance doors of flats in sheltered and extra care housing
9 Any other locations, including (but not limited to) fire doors to rooms	Any	-

<b>Table B.2 Selection of category of actuation for release of electronically locked doors on means of escape from buildings</b>		
<b>Type of Premises</b>	<b>Category of actuation</b>	<b>NIFRS Comments</b>
1 Common places of work, not generally occupied by significant numbers of members of the public (e.g. offices, factories and warehouses), where staff are trained in the fire safety provisions in the building	Any	Acoustically actuated systems are not acceptable.
2 Premises or the parts of premises occupied by, or open to, the public, including shops and shopping centres, hotels, boarding houses, public houses, cinemas, theatres, museums, galleries, leisure centres, transportation terminals and similar premises	Critical (Category A)	<p>In many such premises, particularly those involving public entertainment or sale of alcohol, the use of electronically secured doors on means of escape is unacceptable to NIFRS.</p> <p>In some premises containing high value or rare contents, such as certain museums and galleries, a short delay prior to release of locks is sometimes adopted and should be regarded as a variation.</p> <p>In some premises, electronic security might be vital for reasons of public safety (e.g. at doors separating airside from landside at airports), and special requirements might then apply.</p>
3 Hostels with long-term occupants, residential care premises and hospitals	Critical (Category A)	<p>Electronically secured doors in some premises might be unacceptable to NIFRS.</p> <p>For hospitals, guidance documents on fire safety produced by the Department of Health are appropriate.</p> <p>Acoustically actuated systems are not acceptable.</p> <p>In some premises, electronic security might be vital for public safety (e.g. in-patient mental health units with violent patients) and release of locks as a result of various conditions under Critical (Category A) actuation (e.g. all fault conditions) is unlikely to be acceptable. Standard (Category B) or Indirect (Category C) actuation might be more appropriate in these situations.</p> <p>Similarly, in some residential care homes and mental health units of hospitals, critical (Category A) actuation can result in significant risk to, for example, those living with dementia or other cognitive problems.</p> <p>In these cases, if there is critical (Category A) actuation, release of electronically locked doors, perhaps as a result of a minor fault in the fire detection and fire alarm system, or, for example, removal of a fire detector from its base (e.g. during maintenance), could allow residents or patients to leave a storey of the building, or leave the building through a final exit, unsupervised, placing themselves at risk. Again, on the basis of a risk assessment involving care or medical staff, standard (Category B) actuation might be necessary in these situations.</p>
4 Schools	Critical (Category A)	Electronically secured doors might not be acceptable to NIFRS

<b>Table B.3 Selection of category of actuation for release of powered sliding doors on means of escape</b>		
<b>Type of premises</b>	<b>Category of actuation</b>	<b>NIFRS Comments</b>
1 Common places of work, not generally occupied by significant numbers of members of the public (e.g. offices, factories and warehouses), where staff are trained in the fire safety provisions in the building	Any	Acoustically actuated systems are not acceptable.
2 Premises or the parts of premises occupied by, or open to, the public, including shops and shopping centres, hotels, boarding houses, public houses, cinemas, theatres, museums, galleries, leisure centres, transportation terminals and similar premises	Any	If doors cannot be opened by use of a handle or similar door furniture, only Critical (Category A) should be adopted.
3 Hostels with long-term occupants, residential care premises and hospitals	Any	If doors cannot be opened by use of a handle or similar door furniture, only Critical (Category A) should be adopted.
4 Schools	Any	If doors cannot be opened by use of a handle or similar door furniture, only Critical (Category A) should be adopted.

NIFRS Fire Safety Inspectors will:

- observe for door release mechanisms during each fire safety audit;
- observe a manual test of the release mechanism;
- check doors have a warning sign on both sides;
- check the category of device in use has been determined by a fire risk assessment to ensure it is appropriate for the position of the door. For example: acoustically-actuated systems are not suitable for situations requiring Category A actuation;
- request a copy of the commissioning certificate that should clearly state the category of actuation (an example is provided in *BS 7273-4:2015 + A1:2021*). This will be in addition to the commissioning certificate for the Fire Alarm System to BS 5839-1:2017;
- ensure that the system has been tested weekly and an inspection/service has been carried out every six months. This test includes sounders for acoustic units, batteries and fault indicators (eg, for a radio system) with non-rechargeable batteries replaced every 12 months; and
- ensure evidence of testing and maintenance is provided.

For any queries please contact:

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