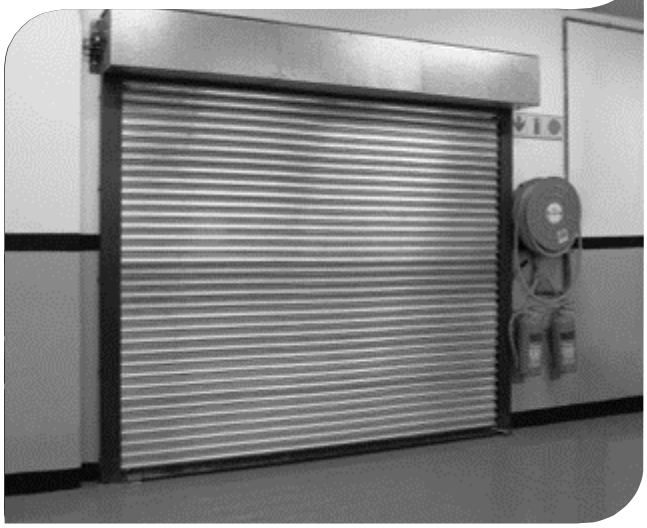
Best Practice ✓
Guide

dhf
Raising Standards
Advancing Safety

Interface between fire shutters, the fire detection & alarm system

Best practice guide to BS 7273 -6



dhf Best Practice Guide: Interface between fire shutters, the fire detection & alarm system to BS 7273-6

This publication is one in a series of guides addressing the major issues that should be considered when specifying, ordering or using the products it describes. It aims to provide the reader with a concise document which includes a summary of relevant sections from the technical product standard. The reader will then be in a position to seek further specialist advice where necessary and recognise GENUINE conformity to the standard.

NOTE: Unless stated otherwise, references in this document to BS 7273 refers to BS 7273-6. Information in this guide is correct at time of publication and intended for guidance only. Information may since have changed, and readers should consult the appropriate specification and authorities to confirm its veracity.

Introduction

BS 7273-6 covers the design, installation, commissioning and maintenance of the interface between fire detection and alarm systems on one hand, and various 'ancillary systems and equipment' (ASE) on the other. It applies where such an interface is required by the fire strategy for the premises.

BS 7273-6 is the most recent part of a series of standards that make up a code of practice for the operation of fire protection measures that covers the following areas:

- Part 1 - electrical actuation of gaseous total flooding extinguishing systems
- Part 2 - mechanical actuation of gaseous total flooding extinguishing systems
- Part 3 - electrical actuation of pre-action water mist and sprinkler systems
- Part 4 - actuation of release mechanisms for doors
- Part 5 - electrical actuation of water mist systems (excluding those covered by part 3)
- BS 7273-6 - fire detection and alarm systems – interface with ancillary systems and equipment (ASE)

From the point of view of fire shutter manufacturers, component suppliers, installers and maintainers, BS 7273-6 covers the interface (link) between the shutter and the fire detection and alarm system.

Other systems covered by BS 7273-6 include the interfaces with smoke control systems, lifts, gas valves, electricity supplies, ventilation systems, lighting, signage and wayfinding systems, paging systems and fire curtains.

Before BS 7273-6 was published, **dhf** had been aware of the principles contained in part 4 (fire doors) but were also aware that part 4 did not apply to shutters. However, the principles outlined by part 4, aligned perfectly with the requirements of the 'durability of ability to release' characteristic in EN 16034, which conventional tube motor operated shutters could not achieve because they could not ultimately gravity close. This caused a degree of concern because it was not clear from UK Building Regulations and other available guidance for UK premises if 'durability of ability to release' or ultimate fail-safe closing by gravity or stored mechanical energy was necessary, or even desirable for fire resisting shutters in UK premises.

BS 7273-6 brings useful clarification for fire resisting shutter systems; they are not necessarily required to close under conditions of fault and power loss and during fire safety equipment checks. This makes sense to **dhf**; a heavy and wide steel shutter closing without warning whenever there is a power cut, fault, or during a fire safety equipment test, could be extremely dangerous for occupants of the premises.

The ultimate responsibility for specification of the interface between fire detection and alarm systems and fire resisting shutters lies with the principal designer or responsible person under Building Regulations and fire safety legislation. However, having an understanding of the applicable rules will assist all stakeholders involved in the process of supplying, installing, and maintaining fire resisting shutters.

This **dhf** document provides manufacturers, installers, and maintainers of fire resisting shutters with guidance on the impact this important British Standard might have on systems they produce, specify, install, commission, or maintain.

This best practice guide explains the most significant parts of BS 7273-6, as they apply to fire resisting shutter installations. Those responsible for design and specification of the complete fire safety strategy for a premises will require access to the complete standard.

The complete document can be purchased from BSI here:

https://knowledge.bsigroup.com/products/code-of-practice-for-the-operation-of-fire-protection-measures-fire-detection-and-fire-alarm-systems-interface-with-ancillary-systems-and-equipment?version=standard

Scope

Part 6 covers recommendations for the design, installation, commissioning, and maintenance of interface arrangements between fire detection and fire alarm system and ancillary systems and equipment (ASE) where this interface is required by the fire strategy for a building.

BS 7273-6 definition extracts

- Cause and effect – the relationship between one or more events – the cause giving rise to one or more events, the effect being the consequence of the events.
- Critical path – the link between a fire detection and fire alarm system and the input terminals of the shutter controls.
- Fail safe - designed so that specified failures result in the same action as a fire signal.

BS 7273-6 clause 4 extracts – general recommendations

- It is likely that the shutter will need to be tested regularly to verify correct operation.
- Means should be provided to test the interface and the shutter during maintenance.
- Where closing the shutter during routine checks of fire safety systems is not desirable, a means to disable the interface should be provided.

dhf ***comment****: This makes sense, given that many fire resisting shutters are not safe for people who may be passing underneath when closing under fire conditions.*

- Where closing of the shutter is critical for fire safety, the interface should fail safe, taking account of cause and effect.

dhf ***comment****: As commonly used 'normally open circuit' interface links do not fail to safe, this could mean that shutters connected in this manner may also need a fusible link heat detector local to the shutter to achieve the required fail-safe performance – check with the specifier, client, or principal designer to ensure that the degree of fail-safe is suitable.*

- The premises fire safety strategy should define at which point the shutter should close.

dhf ***comment****: Check with the specifier, client, or principal designer to confirm when the shutter should close.*

BS 7273-6 clause 11 extracts – fire-resisting shutter

- Whilst some shutters can close by gravity, it is acceptable for shutters to be closed solely by a mechanically driven arrangement; this arrangement requires a dual power supply.

dhf comment*: This means that fire resisting shutters do not necessarily need to have a gravity or stored mechanical energy close capability, they can rely on battery backup instead.*

- BS 9999:2017, 32.2 provides further guidance on fire-resisting shutters.

dhf *comment: This part of BS 9999 explains that vertically acting shutters should not be placed over escape routes unless they are not connected to the fire detection and alarm system, are permanently held open, and are only closed by a local heat detector (e.g. fusible link). This information is also mirrored in Approved Document B (England and Wales).*

- Where a shutter is operated only by a local fire detector, a facility to simulate operation of the detector should be provided for routine testing of the interface and the shutter, without the need for a specialist to test the fire detector.

BS 7273-6 clause 16 extracts – cables and wiring

- The interface wiring should conform to BS 7671.
- Cables need to resist mechanical damage or be protected from such damage.
- Building structure penetrations should be made good, even where the structure is not fire resistant.
- Cable joints should be avoided wherever possible.
- Where cables pass through floors, walls, partitions or ceilings, the aperture should be as small as possible and made good with materials that maintain the fire resistance of the construction.
- BS EN 60702-1 mineral insulated copper sheathed cables and BS 6724 or BS 7846 steel wire armoured cables can be used for critical path wiring without additional mechanical protection.
- All other critical path cables should have additional mechanical protection. Acceptable protection includes cable on tray, burying in the building structure, installation in conduit, ducting, or trunking. Where conditions are likely to be particularly arduous (such as impact by forklift trucks or goods trolleys), the cable should be buried in the structure of the building or installed in metal conduit or trunking.
- Where an open circuit or short circuit fault in the interface would have the same effect on a shutter as a fire alarm signal, interface cables are not necessarily required to be fire resisting.

dhf comment: For example, a 'normally closed' interface circuit.

- Where an open circuit or short circuit fault in the interface would not have the same effect on a shutter as a fire alarm signal, the cables should be fire-resistant in accordance with BS 5839 1:2017 clause 26.2.

dhf comment: For example, a 'normally open' interface circuit.

Contact us for more information

Email: info@**dhf**online.org.uk

Telephone: (0)182752337

Address: **dhf** The Barn, Shuttington Fields Farm, Main Road, Tamworth B79 0HA