

Appendix A

A1 Example fire safety maintenance checklist

A fire safety maintenance checklist can be used as a means of supporting your fire safety policy. This list is not intended to be comprehensive and should not be used as a substitute for carrying out a fire risk assessment.

You can modify the example, where necessary, to fit your premises and may need to incorporate

the recommendations of manufacturers and installers of the fire safety equipment/systems that you may have installed in your premises.

Any ticks in the grey boxes should result in further investigation and appropriate action as necessary. In larger and more complex premises you may need to seek the assistance of a competent person to carry out some of the checks.

	Yes	No	N/A	Comments
Daily checks (not normally recorded)				
Escape routes				
Can all fire exits be opened immediately and easily?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are fire doors clear of obstructions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are escape routes clear?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fire warning systems				
Is the indicator panel showing 'normal'?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are whistles, gongs or air horns in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Escape lighting				
Are luminaires and exit signs in good condition and undamaged?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is emergency lighting and sign lighting working correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Firefighting equipment				
Are all fire extinguishers in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are fire extinguishers clearly visible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are vehicles blocking fire hydrants or access to them?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weekly checks				
Escape routes				
Do all emergency fastening devices to fire exits (push bars and pads, etc.) work correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are external routes clear and safe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fire warning systems				
Does testing a manual call point send a signal to the indicator panel? (Disconnect the link to the receiving centre or tell them you are doing a test.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did the alarm system work correctly when tested?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did staff and other people hear the fire alarm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did any linked fire protection systems operate correctly? (e.g. magnetic door holder released, smoke curtains drop)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Yes	No	N/A	Comments
Weekly checks <i>continued</i>				
Do all visual alarms and/or vibrating alarms and pagers (as applicable) work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do voice alarm systems work correctly? Was the message understood?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Escape lighting				
Are charging indicators (if fitted) visible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Firefighting equipment				
Is all equipment in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional items from manufacturer's recommendations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Monthly checks				
Escape routes				
Do all electronic release mechanisms on escape doors work correctly? Do they 'fail safe' in the open position?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do all automatic opening doors on escape routes 'fail safe' in the open position?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are fire door seals and self-closing devices in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do all roller shutters provided for fire compartmentation work correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are external escape stairs safe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do all internal self-closing fire doors work correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Escape lighting				
Do all luminaires and exit signs function correctly when tested?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have all emergency generators been tested? (Normally run for one hour.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Firefighting equipment				
Is the pressure in 'stored pressure' fire extinguishers correct?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional items from manufacturer's recommendations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Three-monthly checks				
General				
Are any emergency water tanks/ponds at their normal capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are vehicles blocking fire hydrants or access to them?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional items from manufacturer's recommendations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Six-monthly checks				
General				
Has any firefighting or emergency evacuation lift been tested by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has any sprinkler system been tested by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have the release and closing mechanisms of any fire-resisting compartment doors and shutters been tested by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fire warning system				
Has the system been checked by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Yes	No	N/A	Comments
Six-monthly checks <i>continued</i>				
Escape lighting				
Do all luminaires operate on test for one third of their rated value?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional items from manufacturer's recommendations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Annual checks				
Escape routes				
Do all self-closing fire doors fit correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is escape route compartmentation in good repair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Escape lighting				
Do all luminaires operate on test for their full rated duration?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has the system been checked by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Firefighting equipment				
Has all firefighting equipment been checked by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Miscellaneous				
Has any dry/wet rising fire main been tested by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has the smoke and heat ventilation system been tested by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has external access for the fire service been checked for ongoing availability?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have any firefighters' switches been tested?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has the fire hydrant bypass flow valve control been tested by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are any necessary fire engine direction signs in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A2 Example form for recording significant findings

Risk Assessment – Record of significant findings		
Risk assessment for		Assessment undertaken by
Company		Date
Address		Completed by
		Signature
Sheet number	Floor/area	Use
Step 1 – Identify fire hazards		
Sources of ignition	Sources of fuel	Sources of oxygen
Step 2 – People at risk		
Step 3 – Evaluate, remove, reduce and protect from risk		
(3.1) Evaluate the risk of the fire occurring		
(3.2) Evaluate the risk to people from a fire starting in the premises		
(3.3) Remove and reduce the hazards that may cause a fire		
(3.4) Remove and reduce the risks to people from a fire		
Assessment review		
Assessment review date	Completed by	Signature
Review outcome (where substantial changes have occurred a new record sheet should be used)		

Notes:
 (1) The risk assessment record of significant findings should refer to other plans, records or other documents as necessary.
 (2) The information in this record should assist you to develop an emergency plan; coordinate measures with other 'responsible persons' in the building; and to inform and train staff and inform other relevant persons.

Appendix B

Technical information on fire-resisting separation, fire doors and door fastenings

B1 Fire-resisting separation

General

The materials from which your premises are constructed may determine the speed with which a fire may spread, affecting the escape routes that people will use. A fire starting in a building constructed mainly from readily combustible material will spread faster than one where modern fire-resisting construction materials have been used. Where non-combustible materials are used and the internal partitions are made from fire-resisting materials, the fire will be contained for a longer period, allowing more time for the occupants to escape.

Because of the requirements of the Building Regulations you will probably already have some walls and floors that are fire-resisting and limitations on the surface finishes to certain walls and ceilings.

You will need to consider whether the standard of fire resistance and surface finishing in the escape routes is satisfactory, has been affected by wear and tear or alterations and whether any improvements are necessary.

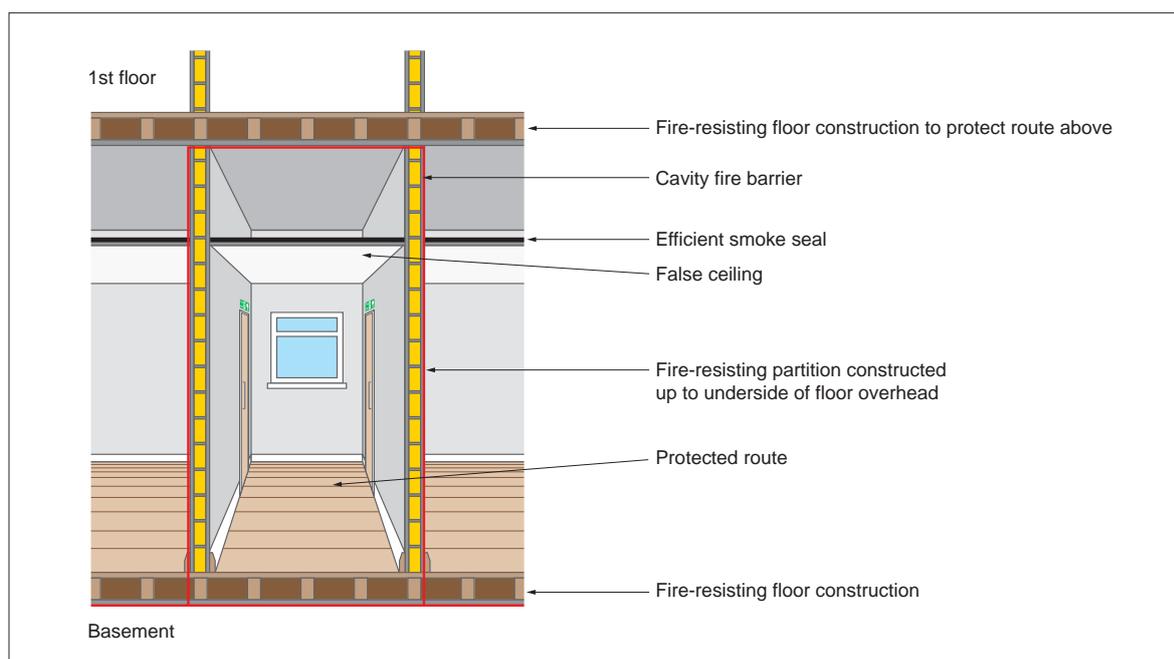
The following paragraphs give basic information on how fire-resisting construction can provide up to 30 minutes protection to escape routes. This is the standard recommended for most situations. If you are still unsure of the level of fire resistance which is necessary after reading this information, you should consult a fire safety expert.

Fire-resisting construction

The fire resistance of a wall or floor is dependent on the quality of construction and materials used. Common examples of types of construction that provide 30-minute fire resistance to escape routes if constructed to the above standards are:

- internal framed construction wall, non-load bearing, consisting of 72mm x 37mm timber studs at 600mm centres and faced with 12.5mm of plasterboard with all joints taped and filled (see Figure 60);
- internal framed construction, non-load bearing, consisting of channel section steel studs at 600mm centres faced with 12.5mm of plasterboard with all joints taped and filled; and
- masonry cavity wall consisting of solid bricks of clay, brick earth, shale, concrete or calcium silicate, with a minimum thickness of 90mm on each leaf.

Figure 60: Fire-resisting construction



There are other methods and products available which will achieve the required standard of fire resistance and may be more appropriate for the existing construction in your premises. If there is any doubt about how your building is constructed, then ask for further advice from a competent person.

Fire-resisting floors

The fire resistance of floors will depend on the existing floor construction as well as the type of ceiling finish beneath. If you need to upgrade the fire resistance of your floor it may not be desirable to apply additional fire resistance to the underside of an existing ornate ceiling. In older buildings there may be a requirement to provide fire resistance between beams and joists.

A typical example of a 30-minute fire-resisting timber floor is tongue and groove softwood of not less than 15mm finished thickness on 37mm timber joists, with a ceiling below of one layer of plasterboard to a thickness of 12.5mm with joints taped and filled and backed by supporting timber.

There are other, equally valid, methods and products available for upgrading floors. If you are in any doubt you should ask the advice of a competent person and ensure that the product is installed in accordance with instructions from the manufacturer or supplier.

Fire-resisting glazing

The most common type of fire-resisting glazing is 6mm Georgian wired glazing, which is easily

identifiable. Clear fire-resisting glazing is available and can quickly be identified by a mark etched into the glass, usually in the corner of the glazed panel, to confirm its fire-resisting standard. Although this is not compulsory, the marking of glass is supported by the Glass and Glazing Federation, you should check whether the glazing will be marked accordingly before purchase. The glazing should have been installed in accordance with the manufacturer's instructions and to the appropriate standard,⁶⁸ to ensure that its fire-resisting properties are maintained.

The performance of glazed systems in terms of fire resistance and external fire exposure should, wherever possible, be confirmed by test evidence. Alternatively, where there is a lack of test information, ask for an assessment of the proposed construction from suitably qualified people.

Fire separation of voids

A common problem encountered with fire separation is fire-resisting partitions which do not extend above false ceilings to true ceiling height. This may result in unseen fire spread and a loss of vital protection to the escape routes. It is important therefore to carefully check all such partitions have been installed correctly.

CLASP and SCOLA type construction

CLASP (Consortium of Local Authorities Special Programme) and SCOLA (Second Consortium of Local Authorities) are total or systematic methods of construction that were developed

to provide consistent building quality, while reducing the need for traditional skilled labour. They consist of a metal frame upon which structural panels are fixed. This results in hidden voids through which fire may spread. It is important that cavity barriers that restrict the spread of fire are installed appropriately, especially to walls and floors that need to be fire-resisting. If you are in any doubt as to whether any remedial work will be required, then ask for advice from a competent person.

Breaching fire separation

To ensure effective protection against fire, walls and floors providing fire separation must form a complete barrier, with an equivalent level of fire resistance provided to any openings such as doors, ventilation ducts, pipe passages or refuse chutes.

The passing of services such as heating pipes or electrical cables through fire-resisting partitions leaves gaps through which fire and smoke may spread. This should be rectified by suitable fire stopping and there are many proprietary products available to suit particular types of construction. Such products should be installed by competent contractors.

Décor and surface finishes of walls, ceilings and escape routes

The materials used to line walls and ceilings can contribute significantly to the spread of flame across their surface. Most materials that are used as surface linings will fall into one of three classes of surface spread of flame. The following are common examples of acceptable materials for various situations:

Class 0: Materials suitable for circulation spaces and escape routes

- Such materials include brickwork, blockwork, concrete, ceramic tiles, plaster finishes (including rendering on wood or metal lathes), wood-wool cement slabs and mineral fibre tiles or sheets with cement or resin binding.

Note: Additional finishes to these surfaces may be detrimental to the fire performance of the surface and if there is any doubt about this then consult the manufacturer of the finish.

Class 1: Materials suitable for use in all rooms but not on escape routes

- Such materials include all the Class 0 materials referred to above. Additionally, timber, hardboard, blockboard, particle board, heavy flock wallpapers and

thermosetting plastics will be suitable if flame-retardant treated to achieve a Class 1 standard.

Class 3: Materials suitable for use in rooms of less than 30m²

- Such materials include all those referred to in Class 1, including those that have not been flame-retardant treated and certain dense timber or plywood and standard glass-reinforced polyesters.

The equivalent European classification standard will also be acceptable. Further details about internal linings and classifications are available in Approved Document B.²⁴ Appropriate testing procedures are detailed in BS 476-7³² and where appropriate BS EN 13501-1.³³

Further guidance on types of fire-resisting construction has been published by the Building Research Establishment.³⁴

B2 Fire-resisting doors

Requirements of a fire-resisting door

Effective fire-resisting doors (see Figure 61) are vital to ensure that the occupants can evacuate to a place of safety. Correctly specified and well-fitted doors will hold back fire and smoke preventing escape routes becoming unusable, as well as preventing the fire spreading from one area to another.

Fire-resisting doors are necessary in any doorway located in a fire-resisting structure. Most internal doors are constructed of timber. These will give some limited protection against fire spread, but only a purpose-built fire-resisting door that has been tested to an approved standard will provide the necessary protection. Metal fire-resisting doors are also available and specific guidance for these follows.

All fire-resisting doors are rated by their performance when tested to an appropriate standard. The level of protection provided by the door is measured, primarily by determining the time taken for a fire to breach the integrity (E), of the door assembly, together with its resistance to the passage of hot gases and flame.

It may be possible to upgrade the fire resistance of existing doors. Further information is available from the Building Research Establishment⁶⁹ or Timber Research and Development Association.⁷⁰

Timber fire-resisting doors require a gap of 2-4mm between the door leaf and the frame.

However, larger gaps may be necessary to ensure that the door closes flush into its frame when smoke seals are fitted. Further information is available in BS 4787-1.⁷¹ For fire-resisting purposes the gap is normally protected by installing an intumescent seal, in either the door or, preferably, the frame. The intumescent seal expands in the early stages of a fire and enhances the protection given by the door. Additional smoke seals will restrict the spread of smoke at ambient temperatures. Doors fitted with smoke seals, either incorporated in the intumescent seal or fitted separately, have their classification code suffixed with an 'S'.

The principal fire-resisting door categories are:

- E20 fire-resisting door providing 20 minutes fire resistance (or equivalent FD 20S). (Note: Many suppliers no longer provide an E 20 type fire-resisting door.)
- E30 fire-resisting door providing 30 minutes fire resistance (or equivalent FD 30S).
- E60 fire-resisting door providing 60 minutes fire resistance (or equivalent FD 60S).

Timber fire-resisting doors are available that will provide up to 120 minutes fire resistance but their use is limited to more specialised conditions which are beyond the scope of this guidance.

Metal fire-resisting doors

Although the majority of fire-resisting doors are made from timber, metal fire-resisting doors, which meet the appropriate Standard, can often be used for the same purpose. However, there are situations where they are more appropriate. The majority of metal fire-resisting door manufacturers will require the use of bespoke frames and hardware for their door sets.

See BS EN 1634-1³⁵ and BS 476-22³⁶ for more information.

For detailed guidance refer to Approved Document B.²⁴

Glazing in fire-resisting doors

Although glazing provides additional safety in everyday use and can enhance the appearance of fire-resisting doors, it should never reduce the fire resistance of the door. The opening provided in the door for the fire-resisting glazing unit(s), fitted in a proven intumescent glazing system, and the fitting of the beading are critical, and should only be entrusted to a competent person. In all cases the door and glazing should be purchased from a reputable

supplier who can provide documentary evidence that the door continues to achieve the required rating.

Fire-resisting door furniture

Hinges

To ensure compliance with their rated fire performance, fire-resisting doors need to be hung with the correct number, size and quality of hinges. Normally a minimum of three hinges is required, however the manufacturer's instructions should be closely followed. BS EN 1935³⁷ including Annex B, is the appropriate standard.

Alternative door mountings

Although the most common method of hanging a door is to use single axis hinges, alternative methods are employed where the door is required to be double swing or mounted on pivots for other reasons.

Floor mounted controlled door closing devices are the most common method regularly found with timber, glass and steel doors while transom mounted devices are commonly used with aluminium sections. In each case reference should be made to the fire test report for details as to compliance with the composition of the door assembly including the door mounting conditions.

Self-closing devices

All fire-resisting doors, other than those to locked cupboards and service ducts should be fitted with an appropriately controlled self-closing device that will effectively close the door from any angle. In certain circumstances, concealed, jamb-mounted closing devices may be specified and in these cases should be capable of closing the door from any angle and against any latch fitted to the door; spring hinges are unlikely to be suitable. Further information is available in BS EN 1154.³⁸

Rising butt hinges are not suitable for use as a self-closing device due to their inability to close and latch the door from any angle.

Automatic door hold-open/release devices for self-closing fire doors

These devices are designed to hold open self-closing fire doors or allow them to swing free during normal use. In the event of a fire alarm the device will then release the door automatically, allowing the self-closing mechanism to close the door.

Such devices are particularly useful in situations where self-closing doors on escape routes are used regularly by significant numbers of people, or by people with impaired mobility who may have difficulty in opening the doors.

Typical examples of such devices include:

- electro-magnetic devices fitted to the fire-resisting door which release when the fire detection and warning system operates, allowing a separate self-closer to close the door;
- electro-magnetic devices within the controlled door closing device which function on the operation of the fire detection and warning system; and
- 'free swing' controlled door closing devices, which operate by allowing the door leaf to work independently of the closing device in normal conditions. An electro-magnetic device within the spring mechanism linked to the fire detection and warning system ensures that the door closes on the operation of the system.

Note: Free swing devices may not be suitable in some situations, such as corridors, where draughts are a problem and the doors are likely to swing uncontrolled, causing possible difficulty or injury to certain people e.g. those with certain disabilities, the elderly and frail, or young children.

Automatic door hold open/release devices fitted to doors protecting escape routes should only be installed in conjunction with an automatic fire detection and warning system incorporating smoke detectors, that is designed to protect the escape routes in the building (see Part 2, Section 2).

In all cases the automatic device should release the fire-resisting door allowing it to close effectively within its frame when any of the following conditions occur:

- the detection of smoke by an automatic detector;
- the actuation of the fire detection and alarm system by manual means, e.g. operation of break glass call point;
- any failure of the fire detection and alarm system; or
- any electrical power failure.

Other devices, including self-contained devices which perform a similar function, that are not connected directly to a fire alarm system and are not therefore able to meet the above criteria are available and may be acceptable where a site-specific risk assessment can show that they are appropriate. Such devices are unlikely to be suitable for use on doors protecting single stairways or other critical means of escape.

In all cases where a door hold open device is used it should be possible to close the door manually.

A site-specific risk assessment should be undertaken before any type of automatic door hold open/release device is installed. If you are unsure about the suitability of such devices in your premises, you should seek the advice of a competent person.

Further guidance about automatic door hold open/release devices is given in BS EN 1155⁷² or BS 5839-3.⁴⁰

Door co-ordinators

Where pairs of doors with rebated meeting stiles are installed it is critical that the correct closing order is maintained. Door coordinators to BS EN 1158⁷³ should be fitted and fully operational in all cases where the doors are self-closing.

Installation and workmanship

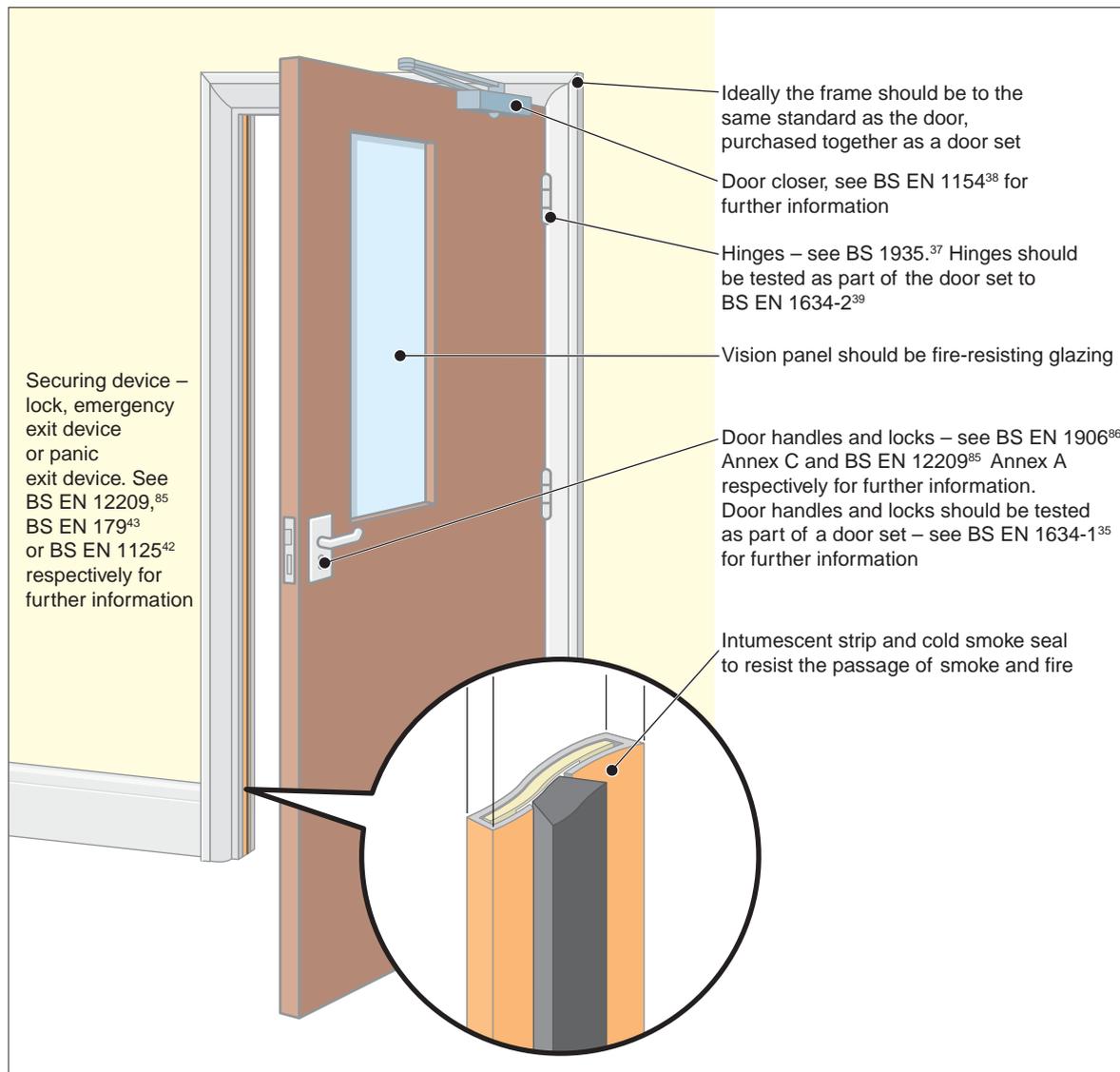
The reliability and performance of correctly specified fire-resisting doors can be undermined by inadequate installation. It is important that installers with the necessary level of skill and knowledge are used. Accreditation schemes for installers of fire-resisting doors are available.

Fire-resisting doors and shutters will require routine maintenance, particularly to power operation and release and closing mechanisms.

Further information is available on fire-resisting doors in BS 8214.⁴¹ If you are unsure about the quality, the effectiveness or the fitting of your fire-resisting doors consult a fire safety expert.

For further guidance on the selection and maintenance of door furniture suitable for use on timber fire resisting and escape doors refer to the Building Hardware Industry Federation (BHIF) Code of Practice – Hardware for Timber Fire and Escape Doors.⁷⁴

Figure 61: A fire resisting and smoke stopping door



B3 Door-fastening devices

The relationship between the securing of doors against unwanted entry and the ability to escape through them easily in an emergency has often proved problematical. Careful planning and the use of quality materials remain the most effective means of satisfying both of these objectives.

Any device that impedes people making good their escape, either by being unnecessarily complicated to manipulate or not being readily openable, will not be acceptable.

Guidance on fire exits starts from the position that doors on escape routes should not be fitted with any locking devices (electrically operated or otherwise). However, it is accepted that in many cases the need for security will require some form of device that prevents

unlimited access but still enables the occupants of a building or area to open the door easily if there is a fire. These devices can take many forms but, in the majority of cases, premises where there are members of the public present or others who are not familiar with the building should use panic exit bar devices (i.e. push bars or touch bars). See BS EN 1125⁴² for further information

Premises that have limited numbers of staff or others who are familiar with the building and where panic is not likely may use devices (i.e. push pads or lever handles). See BS EN 179⁴³ for further information.

In some larger premises, when only certain staff are on the premises and there is a security issue, it may be acceptable to restrict the number of emergency exits immediately available, e.g. when only security staff are

present at night, or prior to opening the premises in the morning. Staff should be made fully aware of any restrictions and the number of exits not immediately available should be limited.

Electrical locking devices

Electrically operated entry control devices have been developed for use as locking devices on fire exits. They fall into two main categories, electromechanical and electromagnetic.

- Electromechanical devices

Electromechanical devices comprise electromechanical lock keeps and draw bolts, which can be controlled by people inside the premises by entering a code or by using 'smart cards', which have been adapted to control the exit from certain areas. These devices have been fitted in many premises and may be linked to the fire-detection and/or warning system. Experience has shown that these devices can fail to open in a number of ways. They are dependent on a spring mechanism to return the lock keep or draw bolt(s) and are liable to jam when pressure is applied to the door. It is also relatively easy to fit them incorrectly. Electromechanical locking devices are normally unacceptable on escape doors, unless they are fitted with a manual means of overriding the locking mechanism such as a push bar, push pad or lever handle or that they do not rely on a spring mechanism, fail-safe open and are not affected by pressure, in which case the criteria for electromagnetic devices should be applied.

- Electromagnetic devices

These devices comprise of a magnet and a simple fixed retaining plate with no moving parts and are therefore generally considered to be more reliable due to their inherent 'fail-safe unlocked' operation. Electromagnetic locking devices go some way to addressing the particular concerns surrounding electromechanical locking systems. The release of this type of device is controlled by the interruption of electrical current to an electromagnet either manually via a switch or other means, break-glass point (typically coloured green), or by linking to the fire-warning and/or detection system of the premises.

Time-delay devices on escape routes

A further development is the fitting of a time-delay system to the electronic door-locking device. This delays the actual opening of an exit door for a variable period following

operation of the panic bar or other exit device. Periods of between five and 60 seconds can be pre-set at the manufacturing stage or can be adjusted when fitted. These are not usually acceptable for use by members of the public, pupils or students. However, they may be acceptable in non-student areas for use by staff who are familiar with their operation and are suitably trained in their use.

Management of electronic door-control devices including time delays

The use of such devices may be accepted by enforcing authorities if the responsible person can demonstrate, through a suitable risk assessment for each individual door, both the need and the adequate management controls to ensure that people can escape safely from the premises. In particular:

- Access control should not be confused with exit control. Many devices are available which control the access to the premises but retains the immediate escape facility from the premises.
- In public areas, when push bars are operated on escape doors, they should release the electromagnetic locks immediately and allow the exit doors to open.
- The requirement for exit control should be carefully assessed and should not be seen as a substitute for good management of the employees and occupants.
- All other alternatives should have been explored/evaluated prior to using these devices to ensure they do not affect the safety of occupants.
- The device should be connected to the fire warning and/or detection system.
- The device should incorporate a bypass circuit for immediate release on activation of the fire warning and/or detection system.
- Each door should be fitted with a single securing device.
- The emergency exit doors should be clearly labelled about how to operate them.
- Adequate control measures should be put in place to ensure the safety of the occupants.

The use of electronic door-locking devices should be considered with particular care in premises with a number of different occupancies. The management of a complicated system of evacuation for many different groups is unlikely to be practicable.

The technical standards in respect of sourcing, maintaining and testing must be extremely high.

When part of the management control system involves trained personnel helping others at these doors, it is vital to ensure these people are available.

The use of exit control devices should not be considered where the number of trained personnel is low or students/pupils would be expected to operate the devices without help. Their use in educational premises should generally be restricted to staff only areas of the premises.

In premises where there may be large numbers of people, the devices should only be considered when linked to a comprehensive automatic fire-detection and warning system in accordance with BS 5839-1.¹⁶ There should be an additional means of manually overriding the locking device at each such exit (typically a green break-glass point).

The use of time-delay systems that prevent the opening of emergency exits for a pre-set time are primarily used to improve security. These add a further layer of complexity to the fire strategy and should not be considered in areas used by students/pupils. They should only be used in staff areas when all other options such as exterior boundary management have been addressed.

British Standard 8220⁴⁴ gives further advice on security in buildings and while this standard does refer to electronic locking devices, it also acknowledges that the balance must remain on the side of emergency escape rather than security.

Appendix C

Historic buildings

General considerations

This appendix offers additional information about listed and historical buildings.

Fire risk assessments conducted for an educational premises which is within a listed or historic building will need to ensure that a balance is struck between ensuring sufficient fire safety measures are in place for the safety of people, yet avoid extensive alterations and helping to maintain the character of the building.

As well as the fire risk assessment it is recommended that a general fire policy statement and manual is compiled. A person must be nominated to take responsibility for all aspects of fire safety. Usually the person charged with the management and control of the premises will be the 'responsible person' under the Order.¹

The advice and/or consent of a building control body or any other relevant bodies (e.g. English Heritage) should form part of any fire risk assessment that impacts on the character of the building (e.g. replacement of doors, fittings, wooden panelling and décor) or material changes to existing escape routes. An ideal solution is one that is reversible, enabling the historic elements to be reinstated.

A fire safety advisor will be able to suggest alternatives to conventional fire precautions, such as:

- a fire engineering solution;
- upgrading existing doors and partitions in a sympathetic manner to improve their fire resistance; and
- considering the installation of specialist fire-detection or suppression systems.

Should the design and nature of the historic building preclude the introduction of conventional fire safety features, it will be necessary to manage the building in such a way that:

- limits the number of occupants, either staff or members of the public, inside the building;
- limits activities in the building; and
- provides adequate supervision within the building.

Historic buildings that open to the public may wish to designate parts as 'off limits' to the general public. The locking of internal doors or the use of fixed or movable barriers should not restrict alternative escape routes being made available.

Liaison with the fire and rescue service

The responsible person will need to ensure effective liaison with the fire and rescue service to enable them to carry out firefighting operations. These may include information on:

- the provision of water supplies, seasonal ponds, lakes and underground tanks, and any associated pumps;
- difficult access for fire engines;
- particular hazards in the construction features of the building (including asbestos);
- the use of combustible under floor insulation;
- underground vaults ducts and voids where fire may spread unchecked;
- worn stone slabs in stairway construction; and
- the presence of cast iron columns and wrought iron beams.

Emergency planning

An important consideration for the owners and trustees is the protection of valuable artefacts and paintings from the effects of fire. However, the efficient evacuation of all occupants must take precedence over procedures for limiting damage to property and contents. Salvage work should be limited to those parts of the building not directly affected by the fire.

Fire wardens and others tasked with carrying out salvage work should have received formal training, adequate protection and be fully briefed about the health and safety risk assessment carried out to identify the dangers associated with this activity. Further detailed advice on fire safety in historic buildings can be found in the following publications:

- BS 7913: Guide to the principles of the conservation of historic buildings, British Standards Institution.
- Heritage under fire: A guide to the protection of historic buildings, Fire Protection Association (for the UK Working Party on Fire Safety in Historic Buildings) 1991, ISBN 0 902167 94 4.
- The Installation of Sprinkler Systems in Historic Buildings (Historic Scotland Technical Advice Note S.), Fire Protection Association (TCRE Division/Scottish Conservation Bureau, Hist.) 1998, ISBN 1 900168 63 4.
- Fire Protection Measures in Scottish Historic Buildings: Advice on Measures Required to Minimise the Likelihood of Fire Starting and to Alleviate the Destructive Consequences of Fire in Historic Buildings (Technical Advice Note), TCRE Division/Scottish Conservation Bureau, Hist. 1997, ISBN 1 900168 41 3.
- Fire Risk Management in Heritage Buildings (Technical Advice Note), TCRE Division/Scottish Conservation Bureau, Hist. 2001, ISBN 1 900168 71 5.
- Summary and conclusions of the report into fire protection measures for the Royal Palaces by Sir Alan Bailey following the Windsor Castle fire, 1992.
- The fire at Upton Park, The National Trust.
- Timber panelled doors and fire, English Heritage
- Fire safety in historic town centres, English Heritage and Cheshire Fire and Rescue Service.

Appendix D

Glossary

These definitions are provided to assist the responsible person in understanding some of the technical terms used in this guide. They are not exhaustive and more precise definitions may be available in other guidance.

Term	Definition
Access room	A room through which the only escape route from an inner room passes.
Accommodation stairway	A stairway, additional to that required for means of escape purposes, provided for the convenience of occupants.
Alterations notice	If your premises are considered by the enforcing authority to be high risk, they may issue an alterations notice that requires you to inform them before making any material alterations to your premises.
Alternative escape route	Escape routes sufficiently separated by either direction and space, or by fire-resisting construction to ensure that one is still available irrespective of the location of a fire.
Approved Document B (ADB) ²⁴	Guidance issued by Government in support of the fire safety aspects of the building regulations.
As low as reasonably practicable	Is a concept where risks should continue to be reduced until you reach a point where the cost and effort to reduce the risk further would be grossly disproportionate to the benefit achieved.
Automatic fire-detection system	A means of automatically detecting the products of a fire and sending a signal to a fire warning system. The design and installation should conform to BS 5839-1. ¹⁶ See 'Fire warning'.
Basement	A storey with a floor which at some point is more than 1,200mm below the highest level of ground adjacent to the outside walls, unless, and for escape purposes only, such area has adequate, independent and separate means of escape.
Child	Anyone who is not over compulsory school age, i.e. before or just after their 16th birthday.
Class 0, 1 or 3 surface spread of flame	Classes of surface spread of flame for materials needed to line the walls and ceilings of escape routes. See Appendix B for further information.
Combustible material	A substance that can be burned
Compartment wall and/or floor	A fire-resisting wall or floor that separates one fire compartment from another.
Competent person	A person with enough training and experience or knowledge and other qualities to enable them properly to assist in undertaking the preventive and protective measures.

Term	Definition
Dangerous substance	<p>1. A substance which because of its physico-chemical or chemical properties and the way it is used or is present at the workplace creates a risk.</p> <p>2. A substance subject to the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR).</p>
Dead end	Area from which escape is possible in one direction only.
Direct distance	The shortest distance from any point within the floor area to the nearest storey exit, or fire-resisting route, ignoring walls, partitions and fixings.
Domestic premises	Premises occupied as a private dwelling, excluding those areas used in common by the occupants of more than one such dwelling.
Emergency escape lighting	Lighting provided to illuminate escape routes that will function if the normal lighting fails.
Enforcing authority	The fire and rescue authority or any other authority specified in Article 25 of the Regulatory Reform (Fire Safety) Order 2005. ¹
Escape route	Route forming that part of the means of escape from any point in the premises to a final exit.
Evacuation lift	A lift that may be used for the evacuation of people with disabilities, or others, in a fire
External escape stair	Stair providing an escape route, external to the building.
Fail-safe	Locking an output device with the application of power and having the device unlock when the power is removed. Also known as fail unlock, reverse action or power locked.
False alarm	A fire signal, usually from a fire warning system, resulting from a cause other than fire.
Final exit	An exit from a building where people can continue to disperse in safety and where they are no longer at danger from fire and/or smoke.
Fire compartment	A building, or part of a building, constructed to prevent the spread of fire to or from another part of the same building or an adjoining building.
Fire door	A door or shutter, together with its frame and furniture, provided for the passage of people, air or goods which, when closed, is intended to restrict the passage of fire and/or smoke to a predictable level of performance.
Firefighting lift	A lift, designed to have additional protection, with controls that enable it to be used under the direct control of the fire and rescue service when fighting a fire.
Firefighting shaft	A fire-resisting enclosure containing a firefighting stair, fire mains, firefighting lobbies and, if provided, a firefighting lift.

Term	Definition
Firefighting stairway	See firefighting shaft.
Fire-resistance	The ability of a component or construction of a building to satisfy, for a stated period of time, some or all of the appropriate criteria of relevant standards. (Generally described as 30 minutes fire-resisting or 60 minutes fire-resisting.) See BS EN 1363-1, ⁴⁵ BS 476-7 ³² and associated standards for further information.
Fire safety manager	A nominated person with responsibility for carrying out day-to-day management of fire safety. (This may or may not be the same as the 'responsible person'.)
Fire safety strategy	A number of planned and co-ordinated arrangements designed to reduce the risk of fire and to ensure the safety of people if there is a fire.
Fire stopping	A seal provided to close an imperfection of fit or design tolerance between elements or components, to restrict the passage of fire and smoke.
Fire-warning system	A means of alerting people to the existence of a fire. (See automatic fire detection system.)
Flammable material	Easily ignited and capable of burning rapidly.
Highly flammable	Generally liquids with a flashpoint of below 21°C. (The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 ⁴⁶ (CHIP) give more detailed guidance.)
Hazardous substance	1. See Dangerous substance. 2. A substance subject to the Control of Substances Hazardous to Health Regulations 2002 (COSHH).
Inner room	A room from which escape is possible only by passing through another room (the access room).
Licensed premises	Any premises that require a licence under any statute to undertake trade or conduct business activities.
Material change	An alteration to the premises, process or service which significantly affects the level of risk to people from fire in those premises.
Means of escape	Route(s) provided to ensure safe egress from premises or other locations to a place of total safety.
Place of reasonable safety	A place within a building or structure where, for a limited period of time, people will have some protection from the effects of fire and smoke. This place, usually a corridor or stairway, will normally have a minimum of 30 minutes fire resistance and allow people to continue their escape to a place of total safety.
Place of total safety	A place, away from the premises, in which people are at no immediate danger from the effects of a fire.

Term	Definition
Premises	Any place, such as a building and the immediate land bounded by any enclosure of it, any tent, moveable or temporary structure or any installation or workplace.
Protected lobby	A fire-resisting enclosure providing access to an escape stairway via two sets of fire doors and into which no room opens other than toilets and lifts.
Protected stairway	A stairway which is adequately protected from the rest of the building by fire-resisting construction.
Protected route	An escape route which is adequately protected from the rest of the building by fire-resisting construction.
Refuge	A place of reasonable safety in which a disabled person and others who may need assistance may rest or wait for assistance before reaching a place of total safety. It should lead directly to a fire-resisting escape route.
Responsible person	The person ultimately responsible for fire safety as defined in the Regulatory Reform (Fire Safety) Order 2005. ¹
Relevant persons	Any person lawfully on your premises and any person in the immediate vicinity, but does not include firefighters carrying out firefighting duties.
Self-closing device	A device that is capable of closing the door from any angle and against any latch fitted to the door.
Significant finding	<p>A feature of the premises, from which the fire hazards and persons at risk are identified.</p> <p>The actions you have taken or will take to remove or reduce the chance of a fire occurring or the spread of fire and smoke.</p> <p>The actions people need to take in case of fire.</p> <p>The necessary information, instruction and training needed and how it will be given.</p>
Smoke alarm	Device containing within one housing all the components, except possibly the energy source, for detecting smoke and giving an audible alarm.
Staged fire alarm	A fire warning which can be given in two or more stages for different purposes within a given area (i.e. notifying staff, stand by to evacuate, full evacuation).
Storey exit	A final exit or a doorway giving direct access into a protected stairway, firefighting lobby, or external escape route
Travel distance	The actual distance to be travelled by a person from any point within the floor area to the nearest storey exit or final exit, having regard to the layout of walls, partitions and fixings.

Term	Definition
Vision panel	A transparent panel in a wall or door of an inner room enabling the occupant to become aware of a fire in the access area during the early stages.
Way guidance	Low mounted luminous tracks positioned on escape routes in combination with exit indicators, exit marking and intermediate direction indicators along the route, provided for use when the supply to the normal lighting fails, which do not rely on an electrical supply for their luminous output
Where necessary	<p>The Order requires that fire precautions (such as firefighting equipment, fire detection and warning, and emergency routes and exits) should be provided (and maintained) 'where necessary'.</p> <p>What this means is that the fire precautions you must provide (and maintain) are those which are needed to reasonably protect relevant persons from risks to them in case of fire. This will be determined by the findings of your risk assessment, including the preventative measures you have or will have taken. In practice, it is very unlikely that a properly conducted fire risk assessment, which takes into account all the matters relevant for the safety of persons in case of fire, will conclude that no fire precautions (including maintenance) are necessary.</p>
Young person	<p>(a) A person aged 16 years, from the date on which he attains that age until and including the 31st August which next follows that date.</p> <p>(b) A person aged 16 years and over who is undertaking a course of full-time education at a school or college which is not advanced education.</p> <p>(c) A person aged 16 years and over who is undertaking approved training that is not provided through a contract of employment.</p> <p>For the purposes of paragraphs (b) and (c) the person:</p> <p>(a) shall have commenced the course of full-time education or approved training before attaining the age of 19 years; and</p> <p>(b) shall not have attained the age of 20 years.</p>

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This guide is for employers, managers, occupiers and owners of educational premises. It tells you what you have to do to comply with fire safety law, helps you to carry out a fire risk assessment and identify the general fire precautions you need to have in place.

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