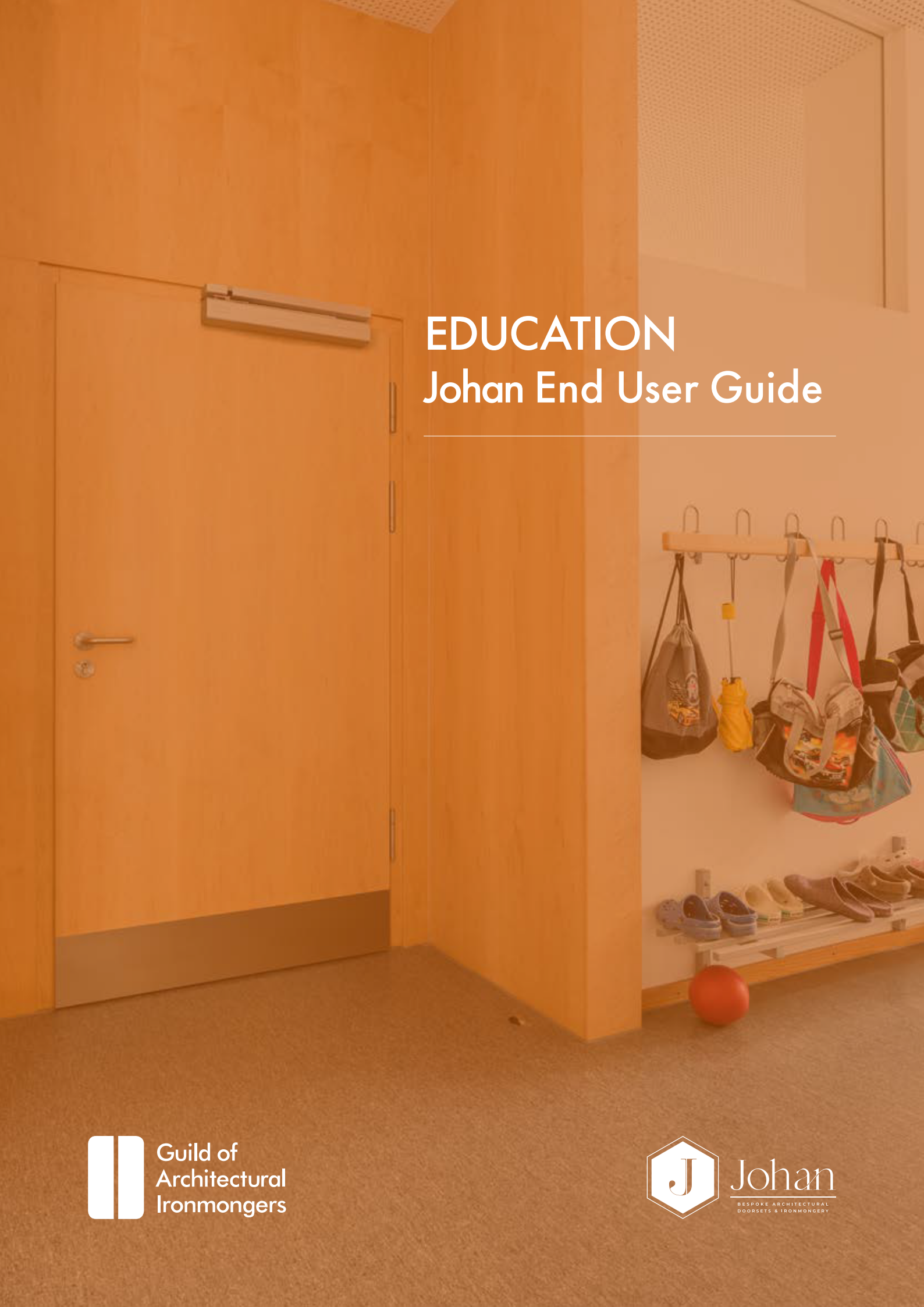

EDUCATION
Johan End User Guide

Guild of Architectural Ironmongers

Johan
BESPOKE ARCHITECTURAL DOORSETS & IRONMONGERY

EDUCATION
Johan End User Guide

This is one in a series of Johan guides which will look at architectural ironmongery (also known as building hardware) from the point of view of the end-user. These end-user guides will address the needs of clients, occupiers, users, developers, facilities managers, and all who are involved with, and use the building following its handover.

It will address maintenance recommendations and care of finishes for relevant materials as well as providing some useful checklists which will assist the end user with critical products such as fire doors or automatic doors.

Please note that the information provided within this End User Guide is intended as guidance only and should not be construed as legal advice. All information, content and materials referred to are for general informational purposes only. Further more detailed advice should always be referred to from the relevant product manufacturer.

Education

This Johan End User Guide is intended for those who have an involvement with educational projects.

These can be defined as the buildings used as a school, college, or day-care purposes involving assembly for instruction, education or recreation incidental to educational buildings.

It can include any of the following buildings:

- Schools (including primary, secondary or school of further education)
- Colleges
- Universities
- Technical institutes
- Academies
- Research laboratories
- Lecture halls

Architectural ironmongery when correctly specified makes a huge impact on any and all buildings however due to their nature and frequent heavy usage, educational buildings require ironmongery that is durable, functional and very much fit for purpose.

It should also be noted that there are a number of UK regulations, namely ISS Regulation 23C and SPRs Regulation 6, that specifically focus on maintaining school premises so that the health, safety and welfare needs of pupils are safeguarded. End Users should therefore be mindful of this.

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1. Competence

Background

Since the tragic events of the fire at Grenfell Tower in London in 2017, the UK construction industry is being driven to increase its levels of competence across the whole sector. The UK Government define competence as "the combination of training, skills, experience and knowledge that a person has and their ability to apply them to perform a task safely." The Government is currently setting the bar higher and higher in respect of what competence is and how it can be demonstrated through the UK Building Safety Act 2022 and those in the construction industry will have to respond to this accordingly. Competence is broken down in the Building Safety Act as Skills, Knowledge, Experience and Behaviour (SKEB). Under the new regime it will not be sufficient to state that you are competent to perform a task, the onus will be on demonstration of this competence. End-users, when selecting installers to replace products, or specifiers to advise on the correct solution should look towards those who can demonstrate their competencies in their field.

Registered Architectural Ironmonger

To ensure that any replacement products required by an end-user meeting the latest standards, regulation, legislation and best practice, it is strongly recommended that the ironmongery should be specified by a GAI Registered Professional: Registered Architectural Ironmonger (RegAI); Registered in Door Systems (RegDS); or Registered in Electric Hardware and Access Control (RegAC). All GAI Registered Professionals have successfully completed a GAI diploma qualification, and continue to maintain and update their knowledge through the GAI continuing professional development (CPD) programme.

GAI Registered Professional status is a clear demonstration of professional competence in matters which are critical to building safety, accessibility and security.

Visit www.gai.org.uk/registered

Relevant Standards

The following BSI competency standards will make it easier for different parts of the built environment industry to work together by establishing agreed core principles, terminology, and requirements on competence, providing a shared understanding of roles along the delivery supply chain.

They will also provide a bridge to wider competence requirements being developed for the professional, technical and artisanal skills of those working in the built environment, raising the quality of work, the behaviour and the culture of individuals working in the built environment.

- BSI Flex 8670: v3.0 2021-04 Built environment – Core criteria for building safety in competence frameworks – Code of practice
- PAS 8671:2022 Built environment – Framework for competence of individual Principal Designers – Specification
- PAS 8672:2022 Built environment – Framework for competence of individual Principal Contractors – Specification
- PAS 8673:2022 Built environment – Competence requirements for the management of safety in residential buildings – Specification

These standards are all available to download at no cost at www.bsigroup.com/en-GB/industries-and-sectors/construction-and-the-built-environment/built-environment-competence-standards/

2. Architectural Ironmongery

2. Architectural Ironmongery

2.1 Definition

Architectural ironmongery concerns the design, manufacturing, specification, supply and installation of products which are critical to the performance of doors and can include hardware, access control, electronic locking and door automation. Other products such as signage, grab rails and washroom equipment can also be included in the packages supplied by an architectural ironmonger.

Architectural ironmongery is of the utmost importance to a building due to its profound influence on the following critical elements of the performance of a building:

- Fire safety
- Accessibility
- Security
- Acoustic Separation

These are all elements which can fail if the incorrect product is specified, supplied and installed.

This sector has in excess of 60 European and British Standards, many of which are mandatory. Qualified architectural ironmongers are well versed in these standards as well as building regulations to ensure projects are specified to the highest and most compliant level.

Adherence to the standards gives reassurance to all that the product specified contributes to safer buildings, which is all the more relevant now in a post-Grenfell world.

- Architectural ironmongery is fundamental to the users experience of a building, both functional and aesthetic. It should be noted that the first product which many will use in a building, be it by touching a door handle or turning a key in a lock, will have been specified by an architectural ironmonger.
- Architectural ironmongery is integral to the design aesthetic – The acclaimed Danish architect and industrial designer Knud Holsher summed this up by saying "Very simple ironmongery is to architecture what buttons are to a shirt; both should support the design and not distract from the overall expression" Simply put – the ironmongery should complement the building but never detract from it.
- Recent GAI research confirmed that ironmongery contributes 1-2% of the cost of a building project (and up to 6% in some sectors such as transport and infrastructure) but can be as much as 20% of the ongoing maintenance cost of running a building, in sectors such as education, healthcare and hospitality (www.gai.org.uk/user).
- Further, the critical role played by architectural ironmongery in security, safety and accessibility, means that as often as not, product failure is a significant concern requiring same-day attention and replacement.
- Quite simply – architectural ironmongery acts as the glue which binds a building together– doors themselves would not function without the correctly specified product thus allowing potential breakdowns in fire performance, security, accessibility and escape.

Terminology

Terminology used in this End User Guide reflects common usage as far as possible. Where appropriate, terminology has been taken from the current BS and EN standards for building hardware.

2.2
Essential requirements for fire/escape doors

Certain items of ironmongery (door hardware) are essential to a fire or escape door's performance. The following products all fall within the scope of European harmonised/UK designated standards.

This means they must all have the appropriate conformity marking (CE/UKCA & CE+UKNI) for the territory when used on fire /escape doors under the European Construction Products Regulations or UK equivalent.

- Single axis hinges (EN 1935)
- Controlled door closing devices (EN 1154)
- Electrically powered hold open devices (EN 1155)
- Door co-ordinating devices (EN 1158)
- Mechanical Locks (EN 12209)
- Electro-mechanical locks (EN 14846)
- Panic exit devices (EN 1125)
- Emergency exit devices (EN 179)

For an ironmongery product to be used on a fire door it should have fire test evidence that it has been tested on a similar construction of fire door.

The European standard for testing of fire doors is EN 1634-1:2014+A1:2018 and the British standard for testing of fire doors is BS 476 part 20-22 1987. Both EN 1634 1 and BS 476 standards are currently acceptable for fire door testing under Approved Document B: Fire Safety in England as well as its equivalents throughout remainder of UK and the Republic of Ireland.


Fire
exit

2.3
Specialist ironmongery - Closing devices

There are certain scenarios where specialist ironmongery is required, particularly in specifications for educational buildings. This includes specialist door closing products and finger trap protection devices. The End User should be able to identify the specialist product in question as well as be aware of any specialist care and maintenance that needs to be taken.

Specialist closing devices

The prime role of a mechanical door closer is to ensure that a door returns to the closed position after it has been used, generally on fire doors. The forces applied by door closers can sometimes make it difficult for users to open the door and these forces need to be carefully considered. End Users therefore need to consider these factors with particular emphasis on ensuring equal access for all in a building.

In areas where the opening forces of the doors could prove to be an obstacle or whether they do not comply with the recommendations within BS 8300-2 standard for accessibility, specialist closing devices are available. Approved Document M on accessibility in England states that "a powered door opening and closing system, either manually controlled or automatically operated by sensors, is the most satisfactory solution for most people".

Approved Document B for Fire Safety in England states "where self-closing devices could present an obstacle to the residents of the building then the following hardware... would be appropriate".

- Bedrooms - Free swing devices.
- Circulation spaces - Hold open devices.

Any of these systems would be most useful in buildings requiring increased accessibility.

Where it is not possible for a controlled door closing device to close a door and keep it closed without exceeding the opening force limits as mentioned in BS 8300 2, then the following systems should be considered:

Swing free closers

Swing free closing devices allow a door to operate without resistance, as if the closer were not present. This means the door can be left in any position. Once the fire alarm is activated electromagnetic control will release the door, this enables the door to close securely.

Devices must be CE marked and tested to BS EN 1155 which is a harmonised/designated standard. They are available in overhead, concealed in door and floor springs. New models are now available featuring an anti-slam finger protection function.

Electromagnetic hold open units

Electromagnetic hold open units are used to hold open fire doors on circulation routes. Their performance is dependent upon doors being closed at the time of fire. These units can be either in an electro-magnetic unit or else as using an independent electro-magnet. They can be surface or flush mounted. Devices must be CE marked and tested to BS EN 1155 which is a harmonised/ designated standard. Single swing doors require controlled closing devices that conform with BS EN 1154.

For advice on maintenance of swing free and electro-magnetic hold open devices please refer to section 2.3.

Power-operated doors

A power-operated door – either sliding, folding, balanced or swing, which should be one of the following two types:

- A manually activated door controlled by a push pad, coded entry system, card swipe or remote control device.
- An automatically activated door controlled by a motion sensor or a hands-free proximity reader.

Note that installation of automatic operators must be to the standard BS EN 16005.

For further detail on power operated doors please refer to section 8 on door automation.

2.3
Specialist ironmongery - Finger trap protection

The NHS has published extrapolated figures suggesting that circa 80,000 accidents occur per annum in the UK, primarily involving children, who have trapped their fingers in doors, leading to serious injury and even amputations.

As a direct result of this, in order to lessen the risk of fingers being damaged, many public buildings will have finger trap protection devices fitted to their doors as a form of good practice.

There are also circumstances where it is mandatory for them to be fitted, for example where automatic swing doors are fitted it is a requirement of BS EN 16005 standard that finger trap protection be used at the hanging stile(s) of the door. It should also be noted that there is a duty of care for people who use public facilities not to be exposed to risks to their health and safety which could include the possibility of having their fingers trapped in doors. Thorough risk assessments should always be conducted into the areas which could cause danger to the occupants of the building – this includes areas such as finger protection.

Always be aware that the correct product selection for finger protection is vital to ensure that robust and safe devices are utilised and the use of products which have been tested to current standards such as BS 8613 is always advisable. Regular maintenance of these products is vital.

Types of Finger trap protection

End Users should also be aware of the types of finger protection devices which are available, as many of these can be retrofitted if there is a wish to increase safety and provide protection in and around the door.

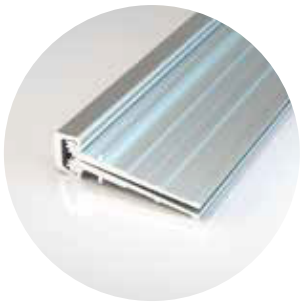
- Gap cover – roller blind.
- Gap cover – rigid shield.
- Hinge knuckle protection.
- Gap and hinge knuckle protection.
- Integrated door and finger protection device
- Integrated door and finger protection system.

Cleaning and maintenance

Finger trap protection devices, due to their specialist nature must always be cleaned and maintained in accordance with the manufacturer's instructions. For generic cleaning advice please see section 2.4.

Gap cover - roller blind

Gap cover - rigid shield



Hinge knuckle protection

Gap and hinge knuckle protection

Integrated door/ finger protection device

Integrated door/ finger protection system

2.4
Maintenance

It is critically important that a maintenance regime is put in place for architectural ironmongery, particularly for those items installed on fire or escape doors. Under the Regulatory Reform (Fire Safety) Order in England and Wales critical items should be maintained at regular intervals as mentioned in the following quotation:

> *"Where necessary in order to safeguard the safety of relevant persons the responsible person must ensure that the premises and any facilities, equipment and devices... are subject to a suitable system of maintenance and are maintained in an efficient state, in efficient working order and in good repair."*

It is recognised that the working life of nearly all door hardware items will be significantly reduced if basic maintenance procedures are not carried out, especially where items are subject to relatively high levels of use. In addition, European standards specifically recommend that certain maintenance routines should be carried out at designated intervals in order to ensure that there is no breach of Health & Safety requirements.

The maintenance routines contained in the following pages are recommended on the understanding that all easing, adjusting and where required, lubrication of door hardware items have been carried out as necessary to ensure correct operation of any component.

General guidance

The recommendations provided within this document offer general guidance. The type and application of doors is numerous and vary accordingly so each door will need to be treated as the case dictates. Much will depend on how the door is utilised and where it is installed. For example:

- External doors will need to be checked for any seasonal changes.
- Applications in severe atmospheric conditions will need additional consideration e.g. coastal locations or swimming pool applications.
- Whilst many final emergency exit doors may be used very infrequently, those used for example as staff 'smoke break' exits may be subject to high usage.
- Internal fire resisting doors are equally important as final exit doors but may well have completely different hardware fitted to them.
- Vandalism and abuse may cause the majority of problems, so such applications may need to be checked more regularly than otherwise indicated.

The onus is on the building owner/employer/occupier to ensure that the maintenance routine is carried out and that:

- The work is carried out by suitably proficient and competent individuals.
- Any remedial work is carried out immediately, especially on doors which form part of the fire safety or security of the building.
- Only parts of equal or better standard should be fitted as anything else could compromise the performance of the door. In the case of fire doors product with appropriate fire test evidence only should be fitted. Failure to do so could invalidate fire certificates.
- To comply with the requirements of EN179:2008 and EN1125:2008, emergency exit and panic exit devices should be subjected to routine maintenance checks at intervals of not more than one month by the owner or occupier or his approved representative.

The conclusion is that building owners/employers/occupiers should ensure that doors and ironmongery are kept in good working order by a properly documented regime of regular and appropriate inspection and maintenance, carried out by suitably qualified and competent individuals.

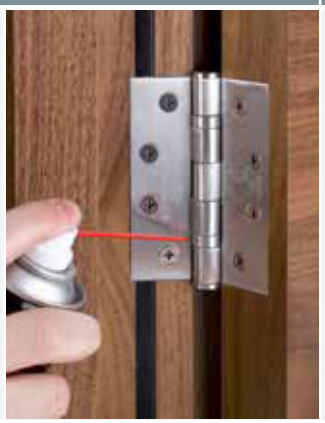
The most important factor is that the door and hardware is designed to protect human life, and nothing should be done which could compromise this.

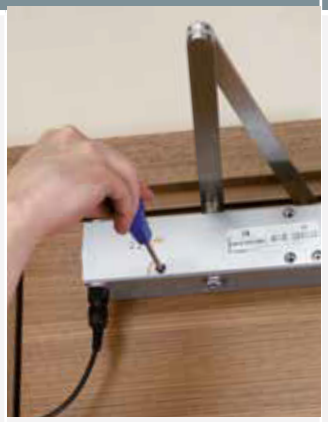
Building Control Officers may include such inspections in their regular fire drills and fire precaution inspections.

2.4 Maintenance (cont'd)

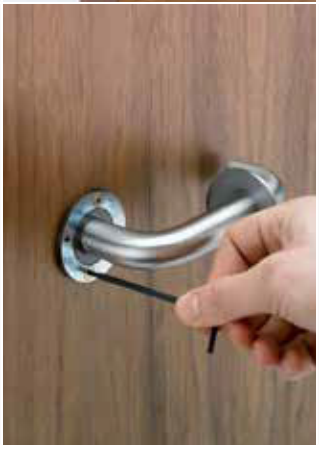
Suggested maintenance procedures and schedule

The following are suggested maintenance tasks and frequency for specific items of hardware. These are intended as a guide only and users should always refer to product instructions for more specific detail. Factors such as legislation, product standards and on-site risk inspections may all impact on the frequency of maintenance required.

Item		Frequency	Tasks
Hinges		Monthly	• Check tightness of fixings and adjust in accordance with manufacturers instructions • Apply light machine oil to knuckle where required (see image) • Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Check for signs of bearing wear, for example cracked ball bearing shrouds. • Check the operation of the door that it has not dropped at the latch end and is dragging as this is a clear indication that the hinge is not carrying the weight of the door.
Overhead closers		Quarterly	• Ensure door closes fully from any open angle • Ensure door latches fully in to the striking plate where relevant and overcomes any fire / smoke / draught seals or differential air pressures (for example, stair-well or corridor lobby doors) • Check tightness of fixings and adjust in accordance with manufacturers instructions (see image) • Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Remove foreign material from moving parts at bracket and arm knuckle • Apply light machine oil to moving parts at bracket and arm knuckle • Any failure of the door to close must be rectified immediately • Check that armset knuckle / joint has not worn and armset does not jump or drop during the closing cycle. • Ensure that any adjustments of the door closer functions has not resulted in leaking fluid.

Item		Frequency	Tasks
Electromagnetic door controls		Quarterly	• Ensure door closes fully from any open angle • Ensure door latches fully in to the striking plate where relevant and overcomes any fire / smoke / draught seals or differential air pressures • Check tightness of fixings and adjust in accordance with manufacturers instructions • Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Remove foreign material from moving parts at bracket and arm knuckle • Apply light machine oil to moving parts at bracket and arm knuckle • Check correct functioning of the door closer and the ancillary equipment including the transformer/rectifier (power supply) • Any failure of the door to close must be rectified immediately • Check the electrical release of the door closer by cutting the electrical power to the unit (usually by switching off test switch) • Ensure the door closer holds open consistently and does not creep closed (Hold open units only) • Check for any wear around the mechanism / armset connection (pinion) that the material has not worn.
Floor springs		Quarterly	• Ensure door closes fully from any open angle • Ensure door latches fully in to the striking plate where relevant and overcomes any fire / smoke / draught seals or differential air pressures (for example, corridor doors) • Check tightness of fixings and adjust in accordance with manufacturers instructions • Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Remove foreign material from moving parts and pivot points • Any failure of the door to close must be rectified immediately
Panic & emergency exit devices		Monthly	• Check correct functioning of the panic exit device mechanism from 3 points (latch/bolt end, centre, hinge end) to ensure full withdrawal of bolts to allow door to open (see image) • Ensure all keeps and sockets are free from obstruction • Check tightness of fixings and adjust in accordance with manufacturers instructions • Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Check any operational area gaps on the device have not increased / widened due to device wear, as these may present a finger trap danger. • Ensure there are no objects or barriers on the opposite side of the door that may inhibit any full opening of the door to allow safe escape.

2.4
Maintenance (cont'd)

Item		Frequency	Tasks
Lockcases		Quarterly	• Check tightness of fixings on strike plates and forends and adjust in accordance with manufacturers instructions (see image) • Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Ensure latch bolts are free from dirt or debris • Lubricate latchbolt and clean / lubricate any frictional areas of the strikeplate with a light clear grease to ensure continuing smooth latching operation
Master-keyed cylinders		Quarterly	• Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Check tightness of fixings and adjust in accordance with manufacturers instructions • Only lubricate where necessary and only with manufacturer approved cylinder spray or graphite. Do not use silicone based lubricant which may cause the cylinder to fail. • To ensure proper lubrication, insert the key and rotate it clock- and counter-clockwise a few times after application of lubricant. • Check operation of cylinder cam with any locking mechanism so that it does not cause any blockage to either latch or deadbolt of a lock
Operating furniture and general hardware		Quarterly	• For lever handles, check that the levers fully return to the horizontal after use and that the latchbolt is engaging smoothly and completely into the strike. Adjust, lubricate or replace as required. • For lever handles, pull handles and push plates make sure that all fixings are as secure as possible. • Check any lever / pull handle grub screws and ensure that any projecting grub screw threads are fully flush with the lever face • Ensure any face fixing wood screws are fully flush and the screw head is not projecting at an angle • Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23)

2.5
Care of finishes

The following are recommendations only and careful consideration must be given to manufacturer's instructions for more specific advice. It should also be noted that the British Institute of Cleaning Science (BICSc) recommend the use of microfibre cloths. When used with water these can remove the requirement for neutral detergent.

Material		Care of finish
Satin stainless steel		• Clean regularly with detergent and warm water • Dry with soft cloth • Do not use abrasive cleaning materials such as brillo pads or similar • Please refer to '2.5 - Generic cleaning advice' (Pages 24-25)
Polished stainless steel		• Clean regularly with detergent and warm water • Dry with soft cloth • Do not use abrasive cleaning materials such as brillo pads or similar • Please refer to '2.5 - Generic cleaning advice' (Pages 24-25)
Anodised aluminium		• Clean regularly with detergent and warm water • Dry with soft cloth • Do not use abrasive cleaning materials such as brillo pads or similar
Brass		• Clean regularly with detergent and warm water • Dry with soft cloth • Do not use abrasive cleaning materials such as brillo pads or similar
Electro plated		• Clean regularly with detergent and warm water • Dry with soft cloth • Do not use abrasive cleaning materials such as brillo pads or similar
Powder coated		• Epoxy, polyester or polyurethane power coated finishes should be cleaned with a soft cloth and household furniture polish. • Under no circumstances must industrial solvents be used. • Do not use abrasive cleaning materials such as brillo pads or similar

Material		Care of finish
Nylon / Polyamide		• Clean regularly with detergent and warm water. • Only use detergents with a Ph balance between 6 & 8 • Detergents containing active substances such as phosphates, soap and tensides may be used • Do not use detergents containing acids, alkalis, bleach or scouring agents • Dry with soft cloth
Nickel & Chrome		• Door furniture with Nickel and Chrome finishes should be dusted regularly. • They should be washed periodically with weak detergent solutions and rubbed occasionally with a cloth dampened in paraffin or light oil.
Unlacquered brass & bronze		• Natural unlacquered brass should be polished from time to time with a proprietary brass cleaner, or left to acquire the natural patina of brass over a period of time. • Surface grease and dirt can be wiped off using soapy water and a soft cloth, and a light coating of furniture wax applied.
Lacquered brass & bronze		• Lacquered finishes should be cleaned by the occasional application of a light coating of wax polish. Eventually it is likely that the lacquer will become damaged and breaks down. When this occurs, all traces of the lacquer should be removed using acetate lacquer remover. The product may then be re-lacquered or cleaned as unlacquered brass on a regular basis. • The application of wax polish once a week is recommended. Abrasives and metal polishes should not be used.
Stove enamel		• These finishes should be wiped with a non-abrasive, soft cloth and a gentle cleaner
Living finishes		• Normal wear and handling will allow the contact areas to reveal the metal below helping to create an aged effect. An occasional application of a good wax polish can be applied if required.
Physical Vapour Deposition (PVD)		• For general cleaning, use a soft cloth to wipe away loose dust and dirt in the direction of the grain. Avoid hard rubbing and scrubbing. • A soft cloth with clean warm water can be used to remove dust, dirt, salt and other deposits. For stubborn marks a diluted solution of a mild pH-neutral detergent and clean water can be used. Avoid harsh solvents and abrasive cleaners.

2.6
Generic cleaning advice

Stainless steel is a frequently specified material for architectural ironmongery products, therefore please see some generic cleaning advice for relevant products. Again, careful attention must always be given to the product manufacturer's instructions for more specific advice.

Problem	Cleaning Agent	Comments
Routine cleaning - All finishes Soap or mild detergent	Soap or mild detergent (such as "Fairy Liquid") and water	Sponge, rinse with clean water; wipe dry if necessary. Seek further advice / instructions from manufacturer on cleaning / maintenance
Fingerprints - All finishes Soap or warm water or organic	Soap or warm water or organic solvent, e.g. Usher-Walker Thinners No. PF8017, acetone, Alcohol, Genklene.	Sponge, rinse with clean water; wipe dry if necessary. Seek further advice / instructions from manufacturer on cleaning / maintenance
Stubborn stains/ Discolouration	Mild non-abrasive cleaning solutions or creams. e.g. Goddard Stainless Steel Care	Rinse well with clean water and wipe dry. Seek further advice / instructions from manufacturer on cleaning / maintenance
Oil/grease marks - All finishes Organic solvents, e.g. Usher-	Organic solvents, e.g. Usher-Walker Thinners No. PF8017, acetone, alcohol, Genklene.	Sponge, rinse with clean water; wipe dry if necessary. Seek further advice / instructions from manufacturer on cleaning / maintenance

Problem	Cleaning Agent	Comments
Rust and other corrosion	Various special gels, 10% Phosphoric Acid or Oxalic Acid solution. The cleaning solution should be applied with a swab and allowed to stand for 15-20 minutes before being washed away with water. May continue using Jif to give final clean.	Rinse well with clean water. For Phosphoric Acid rinse first with Ammonia. (Precautions for acid cleaners should be observed).
Scratches on Brush (Satin)	Slight scratches: impregnated nylon pads. Polishing with scurfs dressed with iron-free abrasives. Deeper scratches: apply in direction of polishing, then clean with soap or detergent as per routine cleaning.	Do not use ordinary steel wool, as iron particles can become embedded in stainless steel and cause further surface damage.)
Powder Coated Finishes (PC)	Soap or mild detergent (such as "Fairy Liquid") and water	Sponge, rinse with clean water; wipe dry if necessary.
Paint / Graffiti Alkaline or solvent paint	Alkaline or solvent paint strippers according to type of paint.	Use soft nylon or bristle brush. Follow manufacturer's instructions.

3. Access Control

3. Access Control

3.1 Definition

Access control is the selective restriction of access to a place or other resource. Its purpose is to ensure that authorised people are free to move around authorised areas of a building at authorised times, while unauthorised people are prevented from entering those parts of a building where or when their presence is not permitted.

Access control identifies users by verifying various login credentials, which can include credentials such as cards or tokens, PINs, or biometric scans.

Access control systems on doors use a combination of electronic locking with users being identified by verifying various login credentials, which can include cards, fobs, bluetooth devices, PINs, or biometric scans.

3.2
Essential requirements for fire/escape doors

As previously mentioned, certain items of ironmongery (door hardware) are essential to a fire or escape door's performance. This includes certain products which can be classed as part of an access control system, including electro-mechanical locks such as solenoid or motor locks and certain electric strikes.

These products fall within the scope of EN 14846, a European harmonised/UK designated standards which means it must have the appropriate conformity marking (CE/UKCA) for the territory when used on fire doors under the European Construction Products Regulations or UK equivalent.

As with all other ironmongery product, any access control product intended to be fitted on a fire door should have third party fire test evidence that it has been tested on a similar construction of fire door.

This is of particular importance for products morticed in to fire doors such as digital locks and electro-magnetic locks (also known as mag locks).

3.3
Maintenance

Once installed, an access control system should require little maintenance with the exception of keeping the components of the system clean from time to time. This includes digital keypads, swipe card readers, proximity readers etc. A wipe with a soft damp cloth is generally all that is required. Abrasive cleaners or cleaners which contain solvents should not be used.

For access control devices which incorporate a mechanical element such as a mortice lock, please refer to '2.3 - Maintenance' (Pages 16-20) maintenance advice on page 15 for further information.

Item	Frequency	Tasks
Digital locks 	Quarterly	• Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Check tightness of fixings and adjust in accordance with manufacturers instructions • Ensure your digital door lock is always performing at its best by updating to the latest firmware for any new features or improvements. • When required, batteries to be changed with new equivalent batteries.
Electro-magnetic locks 	Quarterly	• All fixing screws should be checked and tightened on the mag lock & armature plate. • External surfaces to be wiped over with a soft damp cloth to remove any dust build up. • Ensure that armature plate is able to pivot slightly and is not rigid. This allows engagement of maglock in event of door opening imperfections. • For shear magnets, ensure the locating element of the magnet marries up with the corresponding slot in the armature and that the armature is clean and free from any obstructions. • Check electrical power release from activation device (keypad, card, fob etc.) and there are no delays in release of the magnetic lock.

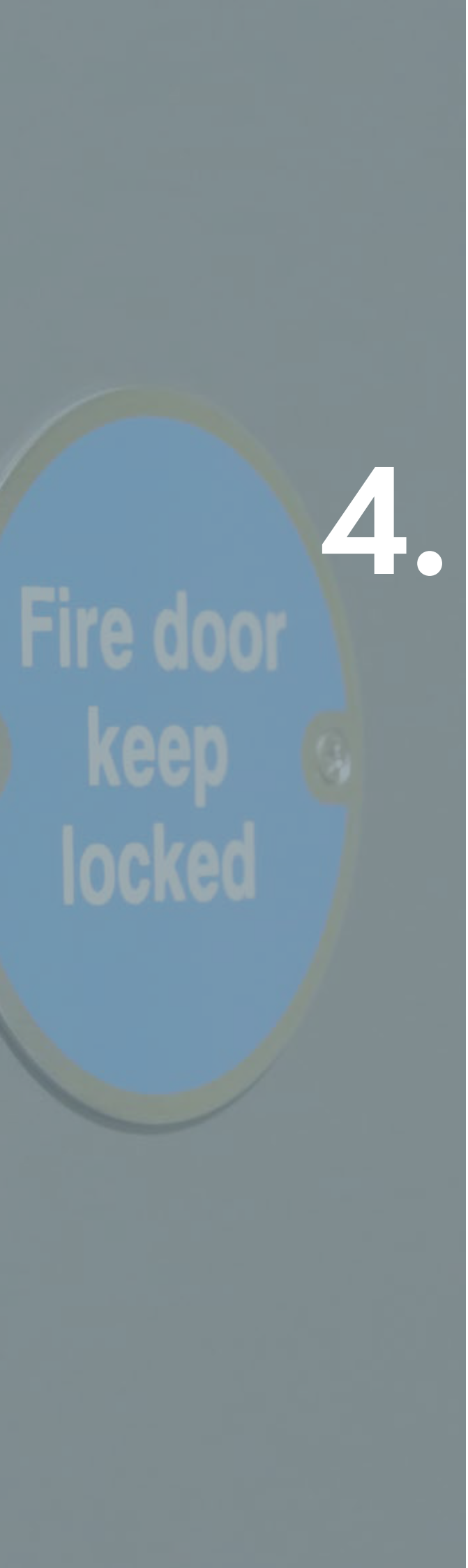
Item		Frequency	Tasks
Electric strikes		Quarterly	• Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Check tightness of fixings and adjust in accordance with manufacturers instructions • A little light machine oil may be used from time to time around the pivot point of the strike jaw to maintain a smooth operation. • Under no circumstances use a spray lubricant, as this type of solvent can damage electronics. • Check electrical power release from activation device (keypad, card, fob etc.) and there are no delays in the releasing of the jaw of the electric strike.
Electro-mechanical locks		Quarterly	• Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Check tightness of fixings on strike plates and forends and adjust in accordance with manufacturers instructions • Ensure latch bolts are free from dirt or debris • Lubricate latch bolt where necessary with light machine oil. Do not put any lubrication inside the lock case.
Electro-mechanical cylinders		Monthly	• Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Only lubricate where necessary and only with manufacturer approved cylinder spray or graphite. Do not use silicone based lubricant which may cause the cylinder to fail. • To ensure proper lubrication, insert the key and rotate it clock- and counter-clockwise a few times after application of lubricant.

Troubleshooting

Any operational problems with an access control system should only be tested and rectified by a qualified and competent technician. However, it may be worth initially establishing beforehand that the problems are not related to any of the following:

- Interrupted power supply (mains supply or battery). Please note, a blown fuse or breaker might be easily remedied but it may be indicative of an underlying electrical problem which should be checked by a qualified technician.
- Misalignment of electromagnetic lock, solenoid lock, electric strike etc which might be preventing the lock from releasing or locking up (may be caused by misalignment in the door which must be rectified)
- Computer hardware (if relevant) ensure that it is operating correctly and the software is correctly installed

4. Intumescent Protection

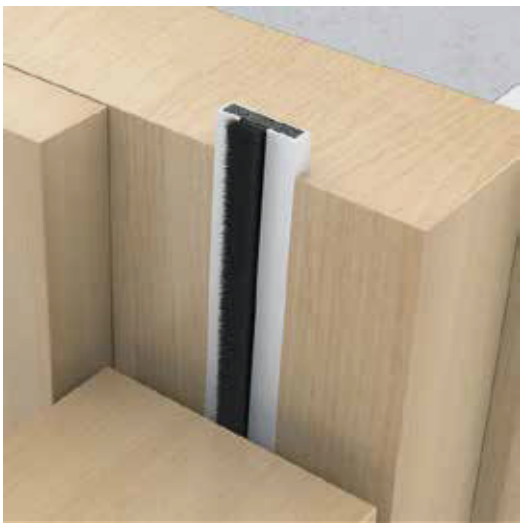


4. Intumescent Protection

4.1
Definition

Intumescent products are vital to the timber or composite fire door. In the event of a fire, hot gases will pour through the small gap between the door and the frame, as heated air around the fire expands and causes a pressure build-up.

These seals are often supplied in a plastic or metal casing, sometimes with an integral smoke seal – wiper blade or brush type. They are fitted to the sides and top of the door or the frame. When heated by fire they expand to fill the space between the door and frame.

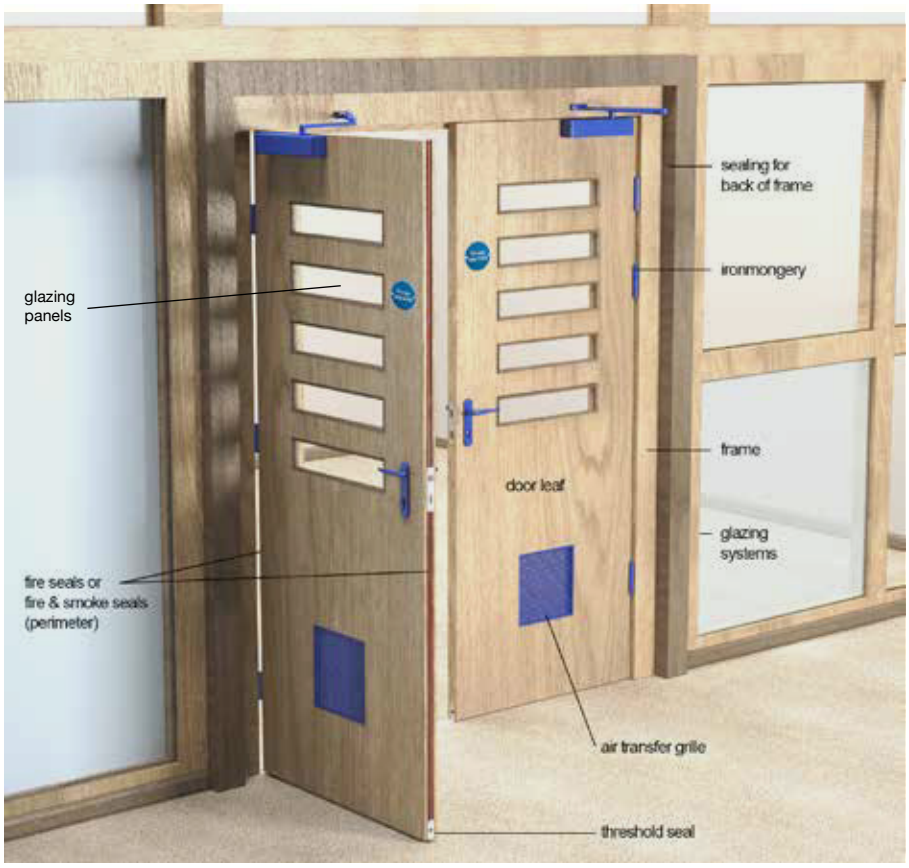


4.2
Essential requirements for fire/escape doors

In order to meet the performance requirements of a fire test, every timber fire door assembly must be fitted with an intumescent seal. As the intumescent material expands under exposure to intense heat, it is designed to fill the normal gap between the door leaf and its frame, blocking off the supply of oxygen in this area to slow down the rate of erosion and charring of the timber. Intumescent is also often required to protect the ironmongery on a fire door, dependent on fire test evidence.

In respect of fire and smoke doors, if an additional smoke seal is not installed then a large amount of smoke will pass through the perimeter door gaps. The conventional door stop on a fire door is inadequate as a smoke barrier. A threshold seal should also be considered on a fire and smoke door if there is a gap of more than 3mm at the threshold. (This is a recommendation of the British Standards BS 9999 and BS 8214).

The following areas in a timber fire door will often require intumescent protection:



4.3
Maintenance

Intumescent products are generally regarded as low maintenance; however periodic inspection and cleaning is recommended for all types of seals. For care and maintenance information of intumescent products the following guidelines can be followed, subject to product manufacturer's detailed instructions.

Item		Frequency	Tasks
Intumescent fire & smoke seals		Six-monthly	• Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Check that the intumescent seal including any fin and brush is intact, undamaged and securely attached to the door or frame in accordance with manufacturer's installation instructions • Any damaged or missing strips should ideally be replaced with a new one of the same size, type and brand as the original • If fins or brush are overpainted replace with a new one of the same size, type and brand as the original
Drop seals		Six-monthly	• Check the drop seal is functioning correctly, deploying and retracting fully • Check release knob, sealing gasket and lift height • Check the gasket is intact and undamaged • If the gasket is damaged, it must be replaced with like for like • Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Adjust if necessary

Item		Frequency	Tasks
Fire and smoke air transfer grilles		Six-monthly	• Visually inspect the air transfer grilles internal components for signs of corrosion, dirt or dust. • Intumescent air transfer grilles, including those positioned behind cover grilles, will require periodic cleaning with a damp cloth. The use of intumescent materials means there are no moving parts. The product is trouble free in operation and easy to maintain – periodic testing is unnecessary. • Collect digital photographic evidence of damper condition prior to and after any testing procedures.
Intumescent fire only air transfer grilles		Six-monthly	• Visually inspect the air transfer grilles structure and free pathway for signs of corrosion, dirt or dust. • Intumescent air transfer grilles, including those positioned behind cover grilles, will require periodic cleaning with a damp cloth. The use of intumescent materials means there are no moving parts. The product is trouble free in operation and easy to maintain – periodic testing is unnecessary.
Talkback fire and smoke air transfer grilles		Six-monthly	• Inspect actuator, shutter plates, DCM including indicator lamps for dust, dirt or damage. • Check and ensure correct operation of plate mechanism, i.e. opening and closing, check for plate separation or sticking. Verify connection to DCM and the damper is functioning by utilizing the test function by appropriately qualified personnel. • Report any defects and record all actions undertaken.
Fire resistant glazing systems		Six-monthly	• The retaining channel or gasket should be cleaned with a damp cloth. • Any cracked glass should be immediately replaced, ensuring that the glass is a direct replacement for the glass being replaced.

5. Signage


Automatic
fire door
keep clear
Automatic
fire door
keep clear

5. Signage

5.1 Definition

Signage is often included within an architectural ironmongery package. This can either be bespoke, such as wayfinding or nameplates on doors, or else mandatory such as escape door or fire door signage.

Fire safety signs

BS 9999 and BS 9991 which are the codes of practice for fire safety recommends that where the risk assessment identifies a need for a fire sign, such signs should be displayed prominently, conspicuously and appropriately. It further recommends that the location of all fire safety signs be recorded in the fire safety manual.

Fire safety signs are used to indicate the location of fire exits, escape routes and assembly points, as well as specific instructions in respect of fore and escape doors. They also give simple, easy to follow instructions for fire safety procedures. Carrying out a risk assessment will identify which fire safety signs are needed and where.


LG06

5.2
Essential requirements for fire/escape doors

6.2.1

6.2.2

6.2.3

Fire doors signage

Doors which are installed for fire resistance purposes within a building should be identified as intended for that purpose. These doors require a mandatory fire safety notice indicating that there is a requirement for the doors to perform a specific function, i.e. to provide a fire-resisting barrier in time of fire. Mandatory fire safety notices must be attached to the door to which they relate. Reference should be made to national Building Regulation guidance documents to ensure the correct provision of these signs. (Signs conforming to BS 5499: 5, now withdrawn, are still acceptable in buildings.)

- Fire doors that have been fitted with self-closing devices should be labelled **'Fire door – keep shut'** on both sides of the leaf (6.2.1).
- Fire-resisting doors to cupboards, stores and service ducts that are not self-closing because they are routinely kept locked should be labelled **'Fire door – keep locked'** on the outside (6.2.2).
- Fire resisting doors which are held open electromagnetically through a hold-open or free-swing device but which revert to self-closing as soon as the fire alarm sounds should be labelled **'Automatic Fire Door Keep Clear'** on both sides of the leaf (6.2.3).

Escape signs

In simple premises, a few signs indicating the alternative exit(s) might be all that is needed. In larger and more complex premises, a series of signs directing people along the escape routes towards the final exit might be needed. Exit signs should be clearly visible whenever residents, the public, staff and contractors are present and you should always ensure that escape signs are not overwhelmed with other signs or decorations. This could affect people's ability to see and understand escape signs, particularly if there is a fire evacuation.

Escape signs should meet the following criteria:

- They should provide clear, readable and unambiguous information to enable people to leave a building safely in an emergency.
- Every escape route sign should, where necessary, incorporate, or be accompanied by, a directional arrow. Arrows should not be used on their own.
- If the escape route to the nearest exit is not obvious then it should be indicated by a sign(s).
- They should be positioned so that a person escaping will always have the next escape route sign in sight.
- They should be fixed above the door in the direction of escape and not be fixed to doors, as they will not be visible if the door is open.
- Signs mounted above doors should be at a height of between 2.0m and 2.5m above the floor.
- Signs on walls should be mounted between 1.7m and 2.0m above the floor.
- Mounting heights greater than 2.5m may be used for hanging signs, e.g. in large open spaces or for operational reasons, but care should be taken to ensure that such signs are both conspicuous and legible. In such cases larger signs may be necessary.
- Signs should be sited at the same height throughout the escape route, as far as is reasonably practicable.

All escape route signs require adequate illumination to ensure they can be seen and understood. They should also be visible under power loss conditions which may require artificial illumination.

Fire exit signs

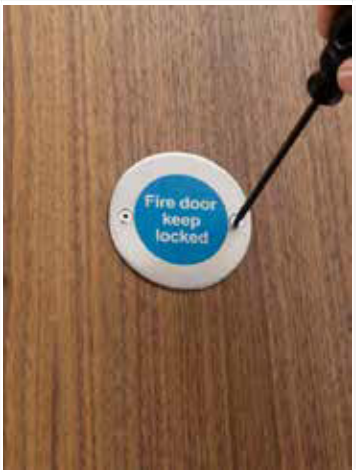
Signs with specific safety meanings in the form of three dimensional arrows or appropriate designated signs with supplementary text e.g. "Push bar to open", "Push pad to open", are required to be displayed where panic or emergency exit devices claim compliance with:

- EN 1125: 1998 Building hardware - Panic exit devices operated by a horizontal bar - Requirements and test methods or
- EN 179: 1998 Building hardware - Emergency exit devices operated by a lever handle or push pad - Requirements and test methods

Where there is a danger that a door designated as a fire exit might become obstructed because its importance as a fire safety measure is not appreciated, e.g. a final exit door opening out from the face of the building in a secluded area, or a seldom used intercommunicating door between rooms or occupancies, a conspicuous 'FIRE ESCAPE - KEEP CLEAR' notice should be displayed on the appropriate face of the door. This is a mandatory sign and requires white lettering on a blue background. All signs, whether escape route signs or mandatory fire safety notices are required to comply with SI 341 The Health & Safety (Safety Signs and Signals) Regulations 1996 in UK.

5.3
Maintenance

If a building's formal risk assessment determines that fire safety signs are required, there is an obligation to ensure that they are inspected and maintained on a regular basis, and that they retain their functional purpose within the fire safety management process and procedures.

Item	Frequency	Tasks
Fire escape signs on doors 	Quarterly	• Follow manufacturers instructions on cleaning. Examples of which can be seen in '2.4 - Care of finishes' (Pages 22-23) • Check tightness of fixings and adjust in accordance with manufacturers instructions • Replace any damaged, worn or missing signs where necessary


Fire door
keep shut

6. Fire Doors

6. Fire Doors

6.1 Definition

Fire doors form an integral part of the building's passive fire protection system which is tasked with compartmentalising a fire, protecting property and avoiding the potentially tragic consequences of serious injury or death.

Buildings are divided into "compartments" by fire-resisting walls, ceilings and floors. A fire door protects an opening in a fire wall, and has the same level of fire resistance as the wall, e.g. 30 or 60 minutes.

Fire-resisting doors

Fire-resisting doors serve three main purposes in a building:

- To restrict the initial development of a fire - a correctly fitted and functioning fire-resisting door can help to suppress a fire by restricting the amount of oxygen available to it.
- To restrict the spread of fire - a closed fire-resisting door is designed to endure direct attack by fire for a specified period of time. This should restrict the spread of fire through the building, gaining time for evacuation of the premises and for active fire protection resources such as sprinklers and fire fighters to perform their functions.
- To protect escape routes - the provision of protected escape routes is a requirement of Building Regulations. Any door opening on to an escape route or operating across an escape route is likely to be designated as a fire-resisting door, to ensure that persons using the route have protection from fire while they escape.

After evacuation, fire-resisting doors should continue to provide some protection for fire fighters entering the building to extinguish the fire.

It should be noted that fire doors must be installed to replicate their tested condition, and if you make any changes to them in any way, you are likely to negatively affect their fire performance, and certainly nullify any third party certification or CE/UKCA mark where applicable..

Key features of fire doors

Fire-rated doors are constructed of materials that work together to slow or stop the spread of fire and smoke. Common constructions include wood, steel, composite and fire-rated glass or a combination of these materials. They are made up of various components including the leaf, frame, fire resistant glazing, intumescent seals and ironmongery.

For commercial or non-domestic properties, the liability for the fire door lies with whoever is deemed the 'responsible person' (under the regulatory Reform Fire safety Order) for that property or the employer. For example, the owner of the property, or the person in control of the property for trade reasons would be responsible.

There are a number of regulations in respect of fire doors which differ according to the jurisdiction you are in. Examples of such regulation include:

- Building Regulations and their accompanying documents on fire safety including:
  - Approved Document B (England)
  - Technical Handbook (Scotland)
  - Technical Booklet E (Northern Ireland)

- Approved Document B (Wales)
- Technical Guidance Document B (Republic of Ireland)

- Regulatory Reform (Fire Safety) Order 2005 in England and Wales – recently extended to cover entrance doors in multi-occupied residences as a result of the Fire Safety Act.
- UK Health and Safety at Work Act 1974 – which is where the obligation for safety as an employer fall.

Thorough risk assessments must be carried out and it is advisable to get professional help with all fire-safety-related regulations. There is more to passive fire protection and fire safety than just fire doors; escape routes, lighting, warning systems and equipment checks are also required.

When selecting a fire door, it is important to know what the different specifications mean. The FD code shows how many minutes of fire a door can withstand, for example an FD30 has been tested to withstand 30 minutes. The most common two codes are generally considered to be FD30 and FD60 although E30 and E60 are also available. The test procedures manufacturers use are specified in BS 476-22:1987 or BS EN 1634-1:2014. Metal fire doorsets can be certified for up to four hours of fire protection. (see section 7 for further detail).

Many deaths during fires are not from direct contact with the flames, but the consumption of smoke. It is therefore important to look out for a doorset with cold smoke seals. These are normally within the intumescent seal. An example of designation of doors with smoke seals are FD30S and FD60S for doors which have been tested to BS 476 31.1. The European equivalent of this test is EN 1634 3.

6.2 Maintenance

Maintenance of fire doors

Why is it important to maintain a fire door?

- It is essential for a fire door to perform its vital role in the event of a fire. As with any similar life-saving product, it should be regularly checked to ensure it functions properly and is ready to use. Fire doors will only prevent fire and smoke from spreading through a building if they are in good working order.
- It is important to check if regular use or changes to the surroundings affect the fire door in any way. Any alteration to the door or its surroundings can greatly affect the performance of the door.
- So, once a fire door has been installed correctly, it needs to be maintained regularly to ensure that everything is in working order.
- Checks should be carried out frequently according to risk assessment or by regulation for further detail. It is a legal requirement in certain cases: The Regulatory Reform (Fire Safety Order 2005 (in England and Wales - as amended) requires that, in residential buildings such as a block of flats, there are suitable fire precautions in place to ensure that the common parts are safe to use as a means of escape in the event of fire. The appropriate fire precautions are determined by carrying out a fire risk assessment. One of the most important measures to safeguard the means of escape from fire comprises fire-resisting doors ("fire doors"). A fire risk assessment should already have identified the doors in question and have determined whether the doors are adequate to resist the spread of fire and smoke into, or within, the common parts. As with all fire safety measures, fire doors need to be kept in good working order and in good repair.

In relation to accessibility, checks should also be carried out on the opening forces of doors. BS 8300-2 states "For most disabled people to have independent access through single or double swing doors the opening forces when measured at the leading edge of the door should be:

- not more than 30N from 0° (the door in the closed position) to 30° open.
- not more than 22.5N from 30° to 60° open.


Fire door
keep shut

6.2 Maintenance (cont'd)

Recommended frequency of maintenance/ inspection

According to BS 8214 Timber-based fire door assemblies Code of practice, the frequency of inspection/maintenance can be determined according to the risk assessment and relative to the frequency of use of the doorway.

For example:

- Low traffic doorsets i.e. riser doors/electrical cupboards - **Annually**
- High traffic doorsets i.e. communal/front entrance doors - **Bi-annually**

Note however that this will all be determined on an individual basis under risk assessment.

Always check local laws and statutory guidance before putting your fire door maintenance or inspection plan in place. For example, it should be noted that Regulation 10 of the Fire Safety (England) Regulations requires that, if the top storey of the building is above 11m in height (typically, a building of more than four storeys) the Responsible Person must:

- use best endeavours to check all flat entrance doors at least every 12 months; and
- carry out checks of any fire doors in communal areas at least every three months.

As a helpful guide to some of the most important points to be considered, we have listed the key areas you should include in your periodic maintenance checks, which we have referred to as 'GAI HAS CALLED' (Table 6.2.1).

G	Glazing and vision panels
A	Apertures
I	Intumescent fire and smoke seals
H	Hinges
A	All operating furniture
S	Signage
C	Closing devices
A	Air transfer grilles
L	Locking devices
L	Labels - certification schemes
E	Excess gaps
D	Door leaf and frame condition

Table 6.2.1

Maintenance checklist

Glazing and vision panels - If the glass is cracked or broken, then it must be replaced immediately. If it is not replaced then in the event of a fire, the smoke and gases will travel through the glass, which means that the fire door will no longer fulfil its proper function. For further detail on glass in fire doors please refer to Glass and Glazing Federation (GGF) Best Practice Guide at www.ggf.org.uk/publications/fire-resistant-glazing-publications/guide-best-practice-specification-use-fire-resistant-glazed-systems/

Apertures - Ensure there are no apertures, holes or breaks in the surface of the door or frame

Intumescent fire and smoke seals - If seals have been badly fitted or are damaged, then they must be replaced with the same type that was originally fitted. If the smoke seals have to be replaced, then they should be fitted in one continuous length if possible. For all essential hardware items (hinges, concealed closing devices, latch or locking devices and their striking plates including electric models), have the correct intumescent protection installed to suit the door set. Remember, only intumescent materials that have been third party tested by a hardware supplier or door manufacturer should be used.

Hinges - Check that there is no visible wear. Any dark marks or stains around the hinge knuckle could indicate wear and impending failure, meaning the hinges should be replaced as soon as possible with a product with correct fire door test evidence.

All operating furniture - such as lever handles, pull handles and push plates. For lever handles check that the levers fully return to the horizontal after use and that the latchbolt is engaging smoothly and completely into the strike. Adjust, lubricate or replace as required. For lever handles, pull handles and push plates make sure that all fixings are as secure as possible.

Signage - Mandatory safety signs - BS 5499 lays down standards for the size and siting of Fire Door Safety Signs. Signs should be fitted on all non-domestic fire doors and be visible at eye level. If these have been tampered with or removed, they must be replaced.

Closing devices - With a self-closing device, open the door and check it closes into its frame from any angle of opening, overcoming any latch or seal. Ensure that doors are not being wedged open. Make sure that door hold-open devices are not straining the doors against their self-closing devices. Check that mechanical hold-open devices have not been fitted. Hold-open devices on fire doors should be electro-magnetic, and connected directly to the fire detection and alarm system, so that they can be released automatically if there is a fire. If fitted, make sure that any electro-magnetic hold-open device is operating correctly and releases immediately when power is removed.

Air transfer grilles - Ensure these are correctly fitted, you should also visually inspect the air transfer grille's internal components for signs of corrosion, dirt or dust.

Locking devices - Wipe any metal dust deposits off the latchbolt and strikeplate. Adjust, lubricate or replace as required.

Labels - You must ensure that the appropriate third party certification label such as BWF-CERTIFIRE is in place. You will find it either on top of the door, or just below the bottom hinge. This must never be tampered with in any way, including painting over it, as doing so will invalidate the certification. In this situation, contact the manufacturer directly and inform them so they can act accordingly. The building managers should have their details on record.

Excess gaps - The gaps must not be greater than those specified in the manufacturer's installation instructions. This is also true for the meeting stiles of double doors.

Door leaf and frame condition - The door and frame must remain square and should not be able to distort between the stiles, top and frame. If the door leaves have minor surface damage, then these can be repaired. However, if there are any major defects in either the door leaves or the frame, they must be replaced.

6.3 Care of finishes

Every fire door produced by a reputable fire door and doorset scheme manufacturer such as BWF Fire Door Alliance will be supplied with the Installation, Care & Maintenance Instructions. These instructions will tell you how and when to maintain that particular door.

The following is some advice on how doors can be maintained and cleaned. Please note that this is generic advice only and the manufacturer's guidelines and instructions should always be followed:

- Veneered doors and panels - Undamaged veneered surfaces can be maintained in a good clean condition simply by wiping at regular intervals with a chamois leather or cotton cloth moistened with warm water. Do not use solid or aerosol wax polishes as over a period of time the integrity of the lacquer coating will be damaged and the surface appearance will alter.
- High Pressure Laminate (HPL) doors and panels - High pressure laminate surfaces that meet international standards EN 438 and ISO 4586/1, offer assured resistance to impact, scratching and surface wear, colour fade and normal commercial and household stains.

Type of stain	Method of cleaning
Light staining Dust etc	Wipe with a dry or damp cloth
Normal stains Dirt, soil, oil, fat, finger marks, rust, wax, fluid deposits, etc	Wipe with a cloth dipped in water and mild detergent
Resistant stains Discolouration through long exposure to fruit juice, tea, coffee, etc	Clean with washing powder or bleach. NB: DO NOT USE TOO OFTEN.
Lead pencil, ball point pens, felt tip pens, Crayons, wax, shoe polish, lipstick, nicotine	Remove with an organic solvent such as methylated spirits, acetone, benzene, perchloethylene or varnish remover. NB: FOLLOW MANUFACTURES INSTRUCTIONS
Paint, varnishes and adhesives	Remove with water or organic solvent depending on product base NB: REMOVE TWO COMPONENT PAINTS AND ADHESIVES IMMEDIATELY
Melamine, urea resin and phenolic resin	Remove immediately. Do not allow to harden.

6.3.1 - Cleaning advice table

Polish

Polish should not be applied to the surface, since it can lead to smearing and marking, particularly on horizontal surfaces.

Door and Panel concealed or exposed lippings

Door and panel lippings may be supplied unlacquered to allow for on site installation and may be left natural or lacquered on site. Natural or lacquered edges may be cleaned by wiping with a chamois leather or cotton cloth moistened with warm water.

Primed for Paint Doors, Panels and Skirting

Door, panel and skirting primed surfaces are prepared to accept finish top coat paints to be applied and cleaned in accordance with the paint manufacturer's instructions.

Door Vision Panels & Glazed Screens

Vision panel & screen glasses may be cleaned using a suitable glass cleaning agent following the manufacturer's instructions. (Avoid excessive volumes of water in cleaning as damage to surrounding timber may occur)

Fire Door Seals

Intumescent and smoke seals should be inspected regularly to ensure damage has not occurred. Damaged seals should be replaced as soon as possible by a competent installer/ contractor.

Timber Door Frames

Lacquered frames may be cleaned by wiping with a chamois leather or cotton cloth moistened with warm water. No polishes or cleaning agents to be used.

6.4
Fire door inspections

Fire door inspections

As previously stated, Fire doors are an essential part of a building's passive fire protection, ensuring that the building is compartmentalised, helping to prevent the spread of fire whilst allowing occupants time to escape. It is therefore imperative that the condition of the fire doors is included as part of the fire risk assessment.

However, a fire door is not just the door leaf. It is a complete assembly of the door, frame, glazing, intumescent, smoke seals and ironmongery. How well all elements work in conjunction together will determine the effectiveness of the door in the event of fire. This can make the process of inspecting a fire door assembly complex and requires a proficient understanding of the relevant building regulations, British Standards and European Standards.

Fire door inspections requires particular specialist knowledge. A thorough inspection of the fire door and surrounding construction will need to be performed. Inspectors should not just inspect the condition of the doors but also the suitability of installation and compatibility of components.

Checks made during the inspection should involve looking at different components including hold-open devices, locks, latches, air transfer grilles, glazing, intumescent protection, handles and fixing methods.

Statistics

The Fire Door Inspection Scheme (FDIS) recently surveyed its approved inspectors and based on more than 100,000 fire door inspections carried out by their approved inspectors in 2021 found the following:

Three-quarters of fire doors inspected in the UK did not meet the required standard, putting building occupants at significant risk

Top three common reasons for failure:

- Excessive gaps between the door and the frame. (BS 8214 Standard states that a typical gap to achieve good fire performance is between 2 mm and 4 mm)
- Issues around smoke sealing,
- Care and maintenance issues

47% of inspectors stated that there was a lack of evidence of fire doors having third party certification. **Any of these faults could prove fatal in the event of fire.**

Building owners that fail to comply with the regulations can be prosecuted and fined or even serve a prison sentence. Recent prosecutions have been severe, even for seemingly trivial issues such as failing to fit fire seals and door closers or leaving fire doors wedged open.

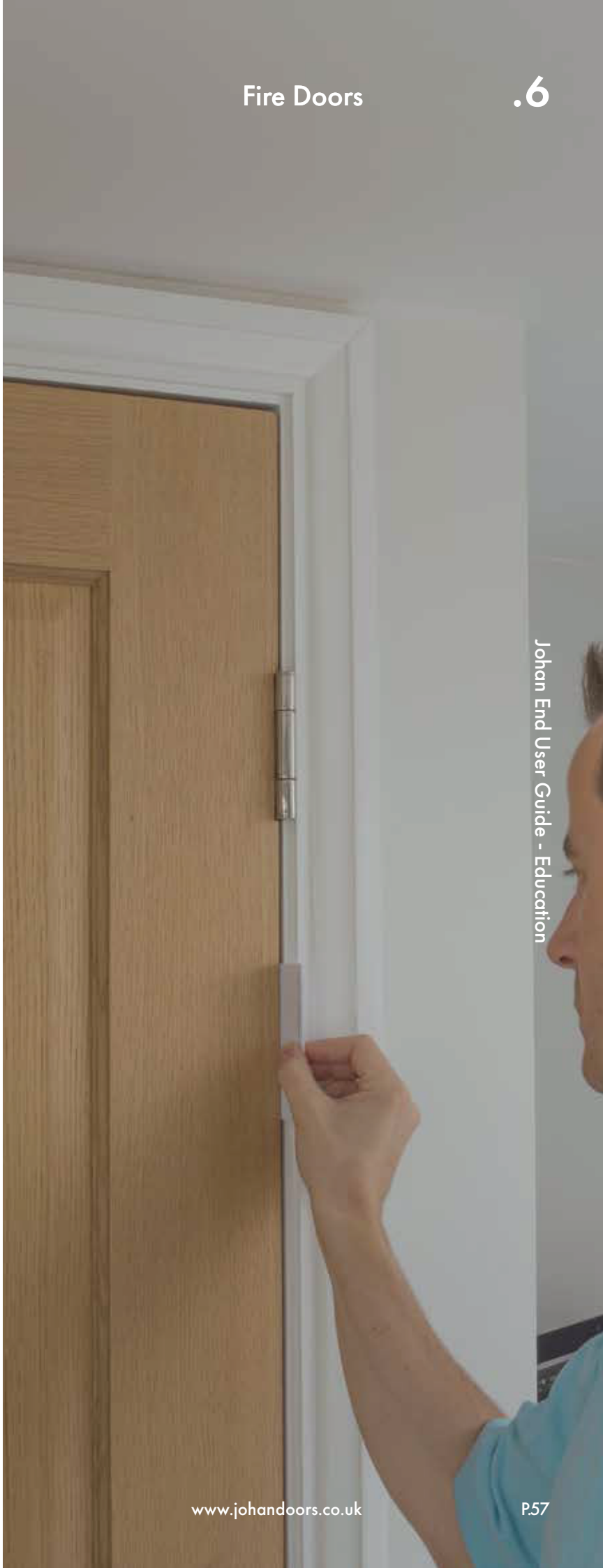
Benefits for the end user

There are many benefits for an end user to have their fire doors inspected regularly:

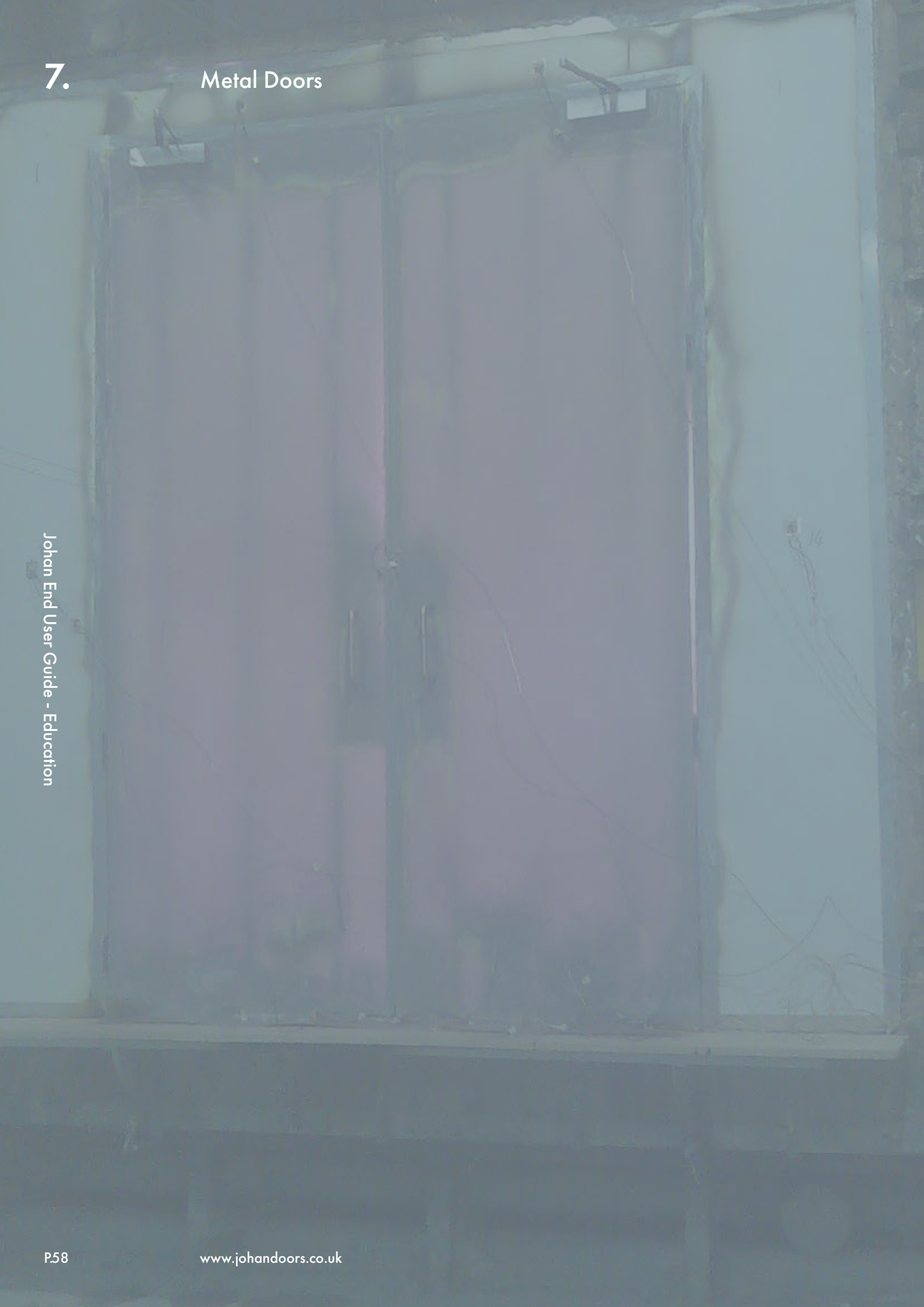
- It provides confirmation that fire doors are compliant and will perform as designed in a fire situation over its whole life cycle
- Non compliances are detailed by the Competent Person as referenced in the Regulatory Reform (Fire Safety) Order.
- Inspections can therefore be in-line with a building's fire risk assessment or fire strategy which can form part of the Building's Health and Safety Policy.
- It helps to prolong the service life of fire doors.
- A working document should be produced to enable exact costing and so avoid unnecessary works and expense and any remedial work should be detailed so that any necessary repairs can be clearly identified.
- It provides help with implementing a suitable maintenance regime.

Who should carry out the fire door inspections?

- Inspection and maintenance should be undertaken by a competent person according to BS 8214 Timber-based fire door assemblies. Code of practice.
- One example of those who are competent are individuals who are suitably qualified to undertake inspections such as those with Cert FDI from Fire Door Inspection Scheme.
- For further information of finding accredited Fire Door Inspectors, please visit the FDIS website (www.fdis.co.uk).



7. Metal Doors



7. Metal Doors

7.1 Definition

Historically used in external building envelopes, where the robust and secure properties of a steel door were favoured. Steel or metal doors are now commonly used throughout buildings where design improvements have changed the perception of their importance and steel doors are no longer viewed as an industrial heavy, potentially rusty structure.

The improved design and finish of steel doors has allowed them to be considered as a direct alternative to traditional timber doors for internal applications, considering the doors enhanced and functional performance in preference to the door's appearance or cost.

As a result of the materials used in the construction of steel doorsets, they are naturally strong, durable and lend themselves to enhanced security, from physical attack, ballistic or blast risk avoidance.

7.2 Maintenance

Steel doors require minimal annual maintenance and unlike some timber doors, can provide a stable construction that can be less susceptible to warp, delamination or distortion when exposed to excessive moisture or changes to humidity. To ensure safe, reliable operation, regular inspection and maintenance is essential.

Item	Frequency	Tasks
Steel and metal doors 	**Dependant on use** (see below)	• Check door leaf and frame for damage. • Check the door leaf alignment. • Ensure door leaf does not scrape the ground • Ensure it has an optimum clearance of 6mm. • Check and grease hinge pivots. • Check locks, latches, handles and all other hardware for smooth operation and security. (See section 2 on architectural ironmongery) • Replace any damaged, worn or missing components where necessary

No of open/close cycles	Recommended inspection and maintenance period
Up to 15 uses per day	Every 6 months
Up to 30 uses per day	Every 4 months
Up to 40 uses per day	Every 2 months
Up to 50 uses per day	Every 5 weeks
Over 50 uses per day	TBA

7.2.1 - Frequency of maintenance table

Frequency of maintenance

The frequency of maintenance depends on the amount of use. Please see table 7.2.1 opposite for recommendations which are intended as a guide only and users should always refer to manufacturer's instructions for more specific detail.

Cleaning advice

Pre-finished doors can easily be cleaned using mild household detergents or washing up liquid with warm water.

DO NOT use any chemicals, solvents, bleach or abrasive type cleaners which would affect the paint finish.

7.3
Fire-resisting metal doorsets

Metal doorsets can be certified for up to four hours of fire protection in comparison to 30-60 minutes from timber or glass fire doors.

Fire resisting doorsets should have relevant performance evidence in the form of a product conformity certificate based on a test report or engineering assessment.

Always consider the use of independent third-party certification schemes for fire doorsets as these assure performance, quality, reliability, and traceability. Third-party certification is a process of testing and verifying a fire door's design, performance, manufacturing process and quality assurance of procedures and supporting documentation.

It should be noted that if replacing metal fire doorsets, the correct installation is critical to its performance and it is recommended that an approved installer should be employed together with a managed ongoing inspection and maintenance program.

8. Door Automation

8. Door Automation

8.1 Introduction

There are occasions when for reasons of convenience, aesthetics, regulation of climate or in order to meet accessibility requirements, that an automated door operator is fitted to a building.

The door will then be referred to as a "powered pedestrian door". These can be:

- a power operated door – such as a sliding, balanced, folding or swing
- a low energy swing door, only suitable for low-risk environments.
- a power operated revolving door

Power operated sliding door


Powered swing door operator


Power operated revolving door

8.2
Occupier's checks

Regardless of the type of operator, the building occupier is responsible for undertaking a test procedure which should be carried out at least weekly unless a different frequency for tests is identified in the Hazard Analysis and Risk Assessment. The test results should be recorded and retained for at least 1 year.

GAI recommend viewing the following short videos that are hosted on the Automatic Door Suppliers Association (ADSA) website, these give an example of how to carry out the checks. Please click on the images opposite to view the respective videos.

8.2.1 - Occupier Safety Checks for Automatic Swing (Hinged) Doors

8.2.2 - Occupier Safety Checks for Automatic Sliding Doors

8.3 Maintenance

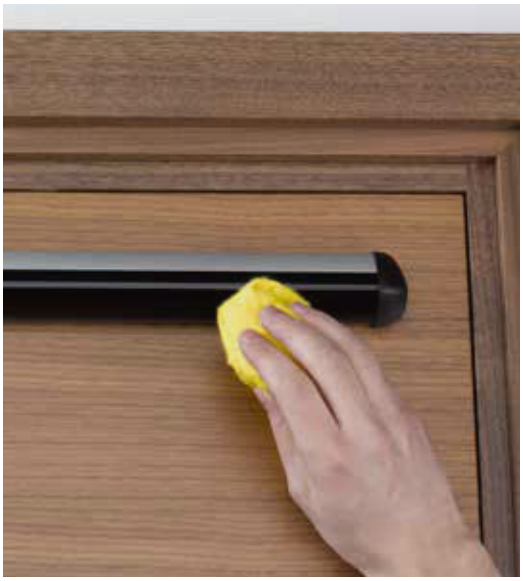
The building occupier should ensure any limited maintenance that can be carried out by a non-professional on the door hardware, safety devices and safety systems are regularly carried out to the manufacturer´s specification.

It is also a duty of care to ensure that the equipment is subject to a schedule of maintenance to be carried out by a professional (Authorised Technician).

Staff should be trained in correct operation of the doors and also in emergency procedures. Also they should be made aware of any limited maintenance for example cleaning sensor covers (8.3.1).

For safety reasons it should not be assumed that equipment is working safely. There should be no notice boards, literature racks, merchandise displays, or other distractions or obstructions in the vicinity of the door which may congest or inhibit traffic flow.

If a fault is found which affects safe operation of the door, the door operating equipment should be switched off and the door made safe. Use of the door should not be reinstated until repairs have been undertaken by an authorised technician.



8.3.1 Cleaning of sensor covers

Qualified maintenance engineers

It should be noted that authorised technicians should be qualified to work on automatic doors to BS 7036 (doors fitted before April 2013) or EN 16005 (doors fitted after March 2013). Powered pedestrian doors must be frequently maintained in line with manufacturer's recommendations in addition to having an annual safety inspection.

Under The Supply of Machinery (Safety) Regulations 2008 (the Machinery Directive), powered pedestrian doors must be operated safely, safe for employees and safe for other users. The doors therefore need to be maintained in accordance with the guidance from the manufacturer.

Automatic doors and gates located in 'workplaces' are subject to a number of specific legal requirements. These will include requirements for: design, manufacture, supply and installation under the Supply of Machinery (Safety) Regulations 2008; and inspection and maintenance under the Workplace (Health, Safety and Welfare) Regulations 1992.

Also note that if powered pedestrian doors are not installed and maintained appropriately that building owners can be prosecuted which may lead to imprisonment, fine or community orders in addition to any civil action taken against them.

9. Transfer of product information

9. Transfer of product information

9.1 Introduction

The handover of the project to the client takes place once the contract administrator has confirmed that the works defined in the contract are complete. Handover may take place during a handover meeting following an inspection of the site.

A number of documents and products should be issued to the client during handover, many of which are pertinent to ironmongery and doors. These can include an Operation and Maintenance Manual, up to date testing and commissioning data in respect of electrical product such as automatic door operators as well as all certificates and warranties in respect of the works. In addition to this the keys including master, sub and differ keys as well as any access control credentials are handed over.

The correct handover of product information is of the utmost importance, ironmongery fitted to fire doors as well as fire doors themselves are all critical fire safety products and are therefore covered within Regulation 38 of the Building Regulations in England.

Much of the information is now being handed over in a digital format through product data sheets or through outputs from BIM models or objects.

9.2
Operation & Maintenance Manuals

O & M Manuals are written documents that are issued at the handover stage of a construction project. They are written to exchange critical information from the main contractor to the client/ building operator/facilities company.

The manuals will provide the building operator with up-to-date, as-built information relating to how the equipment and systems have been designed, installed, and commissioned therefore allowing an efficient understanding of the building's operation and maintenance requirements.

In respect of ironmongery the following elements can be expected within the O & M Manual:

- Description of materials: This details the appropriate ironmongery and groups it by product type and by manufacturer.
- Manufacturer's details: providing name, address and contact details of the appropriate manufacturer.
- Installer's details: Dependent on who has installed product, it could be the Main Contractor, Joinery Sub-Contractor or even Electrical Contractor.
- Details of guarantee/warranty: This sets out the length of guarantee provided – please note that certain manufacturers may have different guarantees and also that electronic product tends to have a shorter guarantee than mechanical. This section can also detail some exclusions to warranty relating to neglect, installation or unreported defects. Any further specific exclusions to warranty as a result of Company policy from the issuing company can also be inserted within this section.
- Technical data sheets: This section provides a data sheet on each relevant product supplied.
- Product Certification:
    - Declarations of Performance: Under the European and/or UK Construction Products Regulation it is now mandatory for manufacturers to apply conformity marking such as CE/UKCA marking to any of their products which are covered by a harmonised/designated European standard or Technical Assessment. Therefore in addition to a valid conformity mark, manufacturers must now legally provide a Declaration of Performance (DoP) with every conformity marked product, either with the product or on their website. Without a DoP, the conformity mark is invalid.
    - Third Party Certification Scheme certificates: This can include copies of certificates from third party schemes such as Certifire or Q-Mark.

9.2 Operation & Maintenance Manuals (cont'd)

Maintenance

- Cleaning Procedures: A simple overview of procedures for the cleaning of product which can be expanded upon where required.
- Storage: Some recommendations on the storage of product.
- Fixings: Advice on usage of supplied fixings.
- Installation: Reference is made herein on installation according to instructions as well as protection of product post-installation.
- Suggested maintenance procedures schedule: This table details various product types along with a recommendation of frequency of maintenance and the tasks associated with each product type.
- Care of finishes: A detailed list of various finishes which can be found throughout the industry and a regime on how each finish could be looked after.

Drawing and schedule index

- This section provides a space to list the appropriate architect's drawing numbers, door schedule numbers, revision numbers and dates of the most up to date information on which the latest ironmongery schedule was based.

9.3 Building Regulations

Regulation 38

Regulation 38* of the building regulations in England and Wales (2010) requires fire safety information to be provided to the 'responsible person' to comply with Building Regulations. The responsible person is usually an individual who has overall control of a building, so could be the owner of an organisation, the facilities manager, landlord or agent.

This regulation aims to ensure that information critical to the fire safety of people in and around the building is communicated to the owner, occupier and/or end user, so that the building can be operated and managed correctly.

To ensure end users can appropriately inspect and maintain their fire doors, it is essential that as much information as possible is provided to comply with Regulation 38 and maximise safety for residents and occupiers. As well as detailing relevant fire door test information and ratings, this should include data on all the components used to assemble the doors such as the ironmongery, frames and seals. Each of these components have an effect on the performance of a fire door, so it is vital that building owners and managers know how they were manufactured. If these components need to be replaced, then the exact same product must be used to ensure compliance.

*It should be noted that Regulation 38 specially references the term "responsible person" as having the same meaning given by article 3 of the Regulatory Reform (Fire Safety) Order 2005.

Golden Thread

According to the Building Safety Act (2022) there is a requirement as part of the more stringent regulatory regime to create and maintain a golden thread of information.

The golden thread is both:

- The information about a building that allows someone to understand a building and keep it safe, and
- The information management to ensure the information is accurate, easily understandable, can be accessed by those who need it and is up to date.

It will be the duty of the people responsible for a building to put in place and maintain a golden thread of information. Having a golden thread will mean that those people responsible will have easily accessible, reliable, up to date and accurate information. Without this information, it is very difficult to manage buildings safely.

Implementation of the golden thread will require individuals and organisations responsible for a building to have good information management systems and a clear understanding of how information management supports building safety. Going forward the information management for safety will need to be embedded across the sector.

The golden thread will have to be kept in a digital format. Having the information available digitally will mean it is more accessible and can be easily updated. This means it will be available to the people who need it in order to maintain building safety.

9.4 BIM

Definition

BIM is the process of creating a rich digital computer model of a building project that can be used to design, fully analyse, build, manage, maintain, refurbish and even demolish that building. BIM refers to the creation and use of co-ordinated, internally consistent, computable information about a building project for design, construction and use. As a model its purpose is to co-ordinate data and drawings between disciplines in a 3D environment.

From an architectural ironmongery and door perspective there have been some developments in BIM which can aid the end-user to have product data in a structured format.

BIM objects

There are a number of hardware and doorset manufacturers who have created BIM objects which can be downloaded in to BIM software. These can create an intelligent 3D model of a doorset that automatically updates as the specifications of elements (including ironmongery) are changed within it.

Product Data Sheets

A Product Data Sheet summarises the performance and other technical characteristics of each construction product, material or component according to specific regulatory, market or client specific requirements. This PDS can then be hosted on the manufacturer's website as a source of structured information on each product.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BESPOKE ARCHITECTURAL DOORSETS & IRONMONGERY