A GUIDE TO FIRE DOOR MAINTENANCE

EBOOK

Construction Specialties®

CONSTRUCTION SPECIALTIES

About Us

For more than 70 years, CS has been a renowned global manufacturer and supplier of specialist interior and exterior building products.

Our high performance Acrovyn Fire Door range, which can be supplied under BM TRADA Q-Mark certification, has been installed in commercial and public buildings – including healthcare and educational establishments – requiring a severe duty, reliable doorset solution for high traffic areas.

Introduction

Fire doors are a critical safety feature of any building in which people work or visit, as they offer resistance to the spread of fire and smoke, limiting its effect whilst allowing enough time for occupants to evacuate to a place of safety.

Fire doors are required to offer two main functions:

a) maintain any compartmentation of buildings in order to limit fire-spread;

b) enable access to protected escape routes such as corridors, lobbies and stairways whilst maintaining fire resistance and limiting smoke movement.

The locations and ratings for fire doors for means of escape are given in relevant guidance under building regulations in the UK and applicable design standards such as BS 9991 and BS 9999 founded on risk-based design considerations. In more complex buildings, designs may be based on fire safety engineering approaches governed by procedures defined in BS 7974.

▲ *Source: BS 8214:2016*

Testing & Door Markings

A door's fire performance is tested in accordance with either BS 476-22 or BS EN 1634-1 and marked accordingly.

When tested to the BS 476-22 standard such doors are marked by the prefix FD, followed by its minutes-based resistance rating.

Therefore, a door marked FD 30 can resist integrity failure for 30 minutes.

When tested to BS EN 1634-1 standard and classified in accordance with BS EN 13501-2, doors are identified by the prefix E followed by the integrity rating expressed in minutes e.g. E 60.

Restriction of 'Cold' Smoke Spread

As well as providing fire resistance, legislation requires certain doors to limit the spread of ambient temperature 'cold' smoke. These doors are identified by the suffix 'S' when tested in accordance with BS 476-31.1, e.g. FD 30S, and suffix 'S_a' when tested in accordance with BS EN 1634-3 and classified under BS EN 13501-2, e.g. FD $30S_a$.

Fire Door Markings

Fire doors should always be clearly marked with their declared fire resistance period immediately post-manufacture or inspection, or prior to dispatch.

It's worth knowing that whilst some marking systems are controlled as part of third-party certification schemes, some others are purely identification in their own right and don't imply such certification.

For further information on fire door markings refer to page 6 of the BSI Standards Publication: BS 8214:2016.

Note:

For an overview of most popular UKAS accredited third-party certification schemes see p. 13-15 of this guide.

Some fire doors, especially those tested to old standards, can sometimes be difficult to identify. For some tips on how to spot those fire doors see 'Risk Assessment Considerations Timber Fire Doors' by ASDMA, available for download from **www.asdma.com**

Regulatory Reform (Fire Safety) Order 2005 (RRFSO)

The current legislation, which came into force in October 2006, puts the responsibility for the fire safety of properties under the control of building owners and managers.

Under the RRFSO the "Responsible Person" for each premises is required to carry out an assessment of the risks from fire and then take steps to reduce or remove that risk.

In order to comply with RRFSO requirements, a fire risk assessment must be completed together with providing an efficient and effective recording system to ensure that regular checks are made on fire prevention assets such as fire alarms and fire resisting doors, as well as providing training to staff and visitors of the building.

Useful reading on the RRFSO:

Fire safety law and guidance documents for business
www.gov.uk/government/organisations/department-for-communities-and-local-government/series/fire-safety-law-and-guidance-documents-for-business

RRFSO Legislation Document:
www.legislation.gov.uk/uksi/2005/1541/contents/made

Health & Safety Executive
www.hse.gov.uk/toolbox/fire.htm

DDA Fire Ltd.
www.ddafire.co.uk/Regulatory_Reform_Order.htm

Fire Door Maintenance

According to BS 8214:2016 'Timber-based fire door assemblies - Code of practice', Fire Doors need to provide a similar level of fire resistance as building elements such as walls or floors, and are evaluated under the same stringent tests and procedures.

Due to being positioned in corridors and areas of heavy footfall, doors are susceptible to damage, and excessive wear and tear resulting from repeated operation. Deterioration can take two main forms:

a) damage to the leaf or the components making up the door assembly;

b) wear in the door hardware, or a reduction in the performance of fixings, causing the door to fail to self-close, leading to a breach of the fire barrier.

Regular inspection and maintenance is therefore vital to uphold the necessary fire resistance.

Note:

The risk assessment and the amount of traffic the doorway is subject to will determine the frequency of maintenance checks.

A good routine to get into for checking fire doors on your premises could be:

- Weekly inspection for high usage doors, such as those in busy routes with hundreds of openings per day
- Monthly check for doors in traffic routes, main entrances and corridor doors
- Annual check for office or plant room service risers etc.

Fire Door Inspection

Regular fire door inspection and maintenance is essential to Building Regulations compliance and occupant safety. Both tasks should be undertaken by a competent person.

An inspection should cover any damage (whether superficial or structural), or deformation to all door assembly elements, including door leaves, door frames, hardware, glazing and seals. All defects and damage should be noted against the relevant door along with a suggested repair and when it will be carried out.

At the back of the guide we have included a Fire Door inspection checklist and a couple of useful tables to help you keep track of your checks, maintenance and remedies.

Information relating to assigning assessors or inspection training is available online via the Fire Door Inspection Scheme: **www.fdis.co.uk**

Note:

Ensure individual door components are marked with their fire rating credentials, and keep that mark throughout the lifecycle of the door, as they can be an aid to the correct replacement of those components when necessary.

Door Leaves and Door Frames

Fire door repairs should generally be avoided, except for minor ones, which should be carried out by a competent person, and with the door manufacturer's approval to ensure fire integrity isn't compromised.

BS 8214:2016 stipulates that when any other damage is detected, the complete door leaf or frame should be replaced. The replacement should provide the same level of fire resistance as the damaged door.

If intumescent fire seals are fitted in the original door frame, the new door should be compatible with them.

Doors that are normally kept locked should be inspected whilst open.

Operating and threshold gaps

When installed, fire doors should have an equal and even gap across the head, down both jambs and at meeting edges, typically between 2-4mm. These operating gaps should be maintained throughout the door's lifecycle.

The same applies to under door threshold gaps, which need to be maintained at a size defined within manufacturer's installation instructions for the particular door design.

Note:

If one double door leaf is damaged, both should be replaced with a new matching pair.

Any difference in construction between leaves could result in different movement when exposed to fire and severely reduce a door's fire integrity.

Onsite Decoration

Fire door leaves are not generally required to offer a specific surface spread-of-flame barrier, thus allowing them to be re-decorated.

Care should be taken however not to overpaint smoke-only seals, or smoke element of combined intumescent fire and smoke seals.

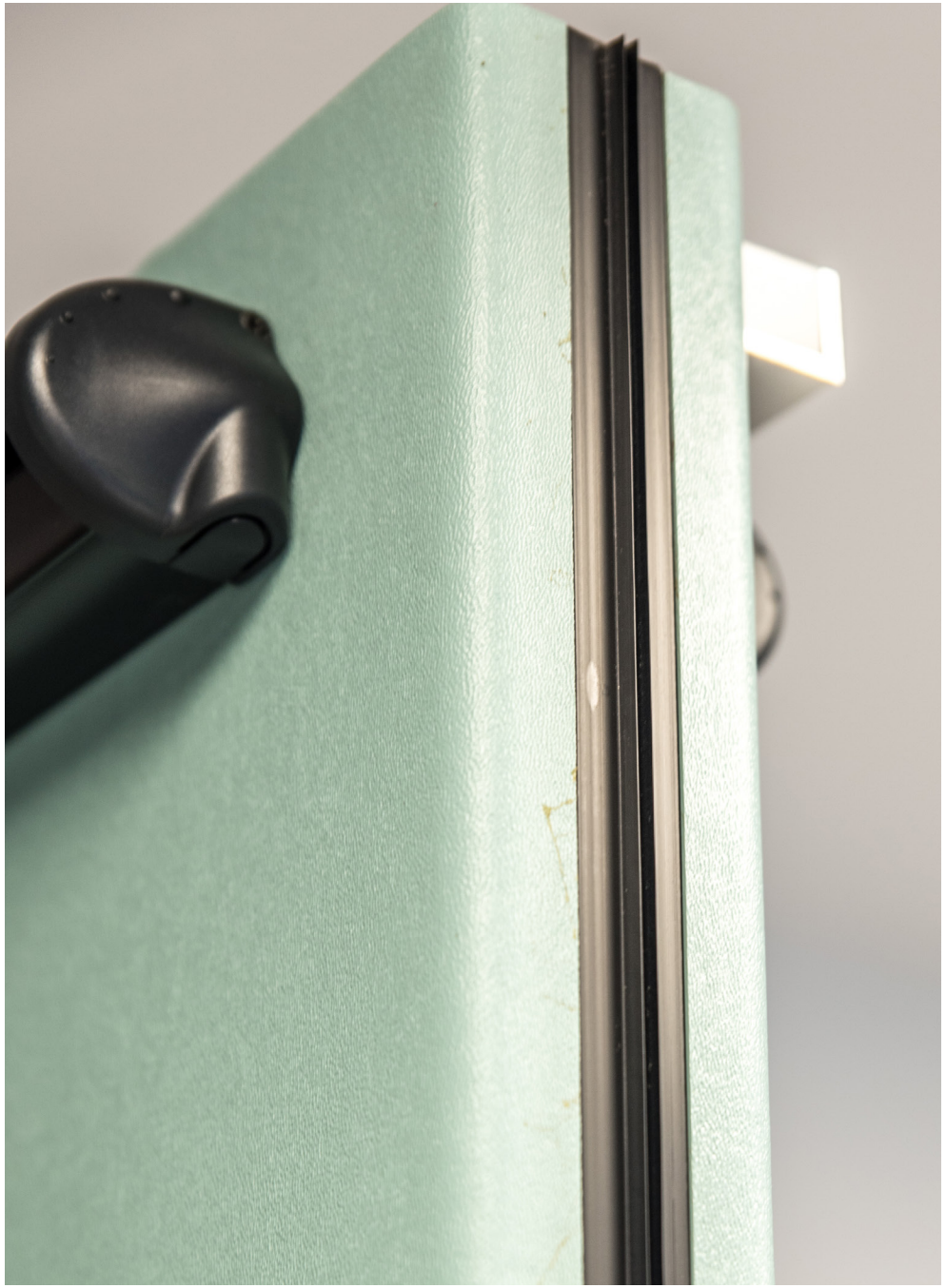
Intumescent fire-only seals can be overpainted, but this should be limited to a maximum of five coats (or a maximum 0.5mm thickness of paint/lacquer layer) to reduce the risk of the seal becoming ineffective.

Specialist advice should also be sought before overpainting any glazing beads which would have originally been treated with intumescent paint.

Impact Resistant Solution

An alternative longer-term, damage-preventative solution is available via CS' Acrovyn® door protection range, including door edge protection, door cladding, kick and push plates, and door frame protection. Each impact-resistant solution is designed to extend a door's lifecycle, thus reducing maintenance and repair costs.

Visit: **www.c-sgroup.co.uk/products/acrovyn-impact-resistant-doors**



Intumescent Seals & Cold Smoke Seals

Three types of door seal are available for fire and smoke containment:

a) intumescent fire seals designed to maintain the integrity of the door assembly;

b) smoke seals to restrict the flow of smoke before intumescent fire seals become effective;

c) combined intumescent fire and smoke seals incorporated in one assembly.

The seals' damage or degradation could severely impact the door assembly's performance.

Note:

If any part of the seal is missing the entire length should be immediately replaced.

The replacement seal should be the same size, design and configuration as the original and fitted as per the manufacturer's instructions.

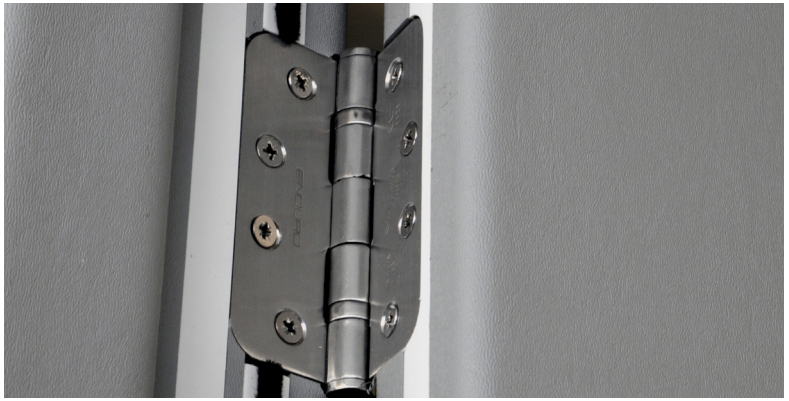
Replacement of Door Hardware and Glazing

Any damaged glass or door hardware (hinges etc.) should be replaced like for like according to the fire door manufacturer's technical information.

In the case of glass, it is important to check with the manufacturer whether the replacement can be carried out on site or not.

Note:

Guidance on the specification and maintenance of building hardware for fire doors is given in the DHF/GAI Code of practice: hardware for fire and escape doors.
www.firecode.org.uk



Product Certification & Installation Schemes

Further reassurance of satisfactory performance of a fire door or doorset, (outside of the British Standard tests) may be had in the form of third-party product certification schemes.

Third-party certification ensures consistent production of fire doors or doorsets.

UKAS accredited organisations operating assessment and certification schemes in the UK include:

- **BM TRADA Q-Mark Certification**
- **Certifire**
- **IFC Certification Ltd.**
- **BRE Global (incorporating LPCB)**
- **BlueSky Certification**

Note:

It is important to maintain any marking/ labelling on the door as this is one of the main identifiers for a fire doors rating and allows for product traceability.

Third-party certification bodies also have lists of certified manufacturers on their website should you wish to check credentials and certificate numbers.

PRODUCT CERTIFICATION & INSTALLATION SCHEMES

BM TRADA Q-Mark

bmtrada
Proud to be part of element

Part of Element, a global independent provider of testing, inspection and certification services, BM Trada operates Q-Mark certification schemes for fire door manufacturers, installers and fire door maintenance.

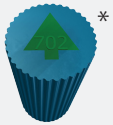
Certified fire doors are identifiable by plugs fitted in the door leaves and frames, carrying a unique identification number facilitating traceability of the manufacturer.

Further details on Q-Mark schemes, and lists of certified manufacturers and installers can be found on: **www.bmtrada.com**

CS Acrovyn Fire Doors have been fire tested under the Q-Mark scheme to BS 476-22:1987.

Fire Door Manufacture
Q-MARK CERTIFICATION BMTRADA

Acrovyn Fire Doors can be fitted with the following Q-Mark plugs carrying our unique identification number 702:

	30 min	60 min
Approved door. Intumescent not yet fitted.		
Approved door. Intumescent in door factory fitted.	 *	 *
Approved factory fitted glazing.		

* **When fixed to frame** = Approved frame to match door. All intumescent to door and frame fitted

www.c-sgroup.co.uk/products/acrovyn-impact-resistant-doors/

PRODUCT CERTIFICATION & INSTALLATION SCHEMES

Certifire

Operated and managed by Warringtonfire (now part of Element), Certifire is a well recognised, independent third-party accreditation scheme for a wide range of products and systems.

The company provides doorset and door hardware fire testing to British, European and international standards.

For further information visit:
www.warringtonfire.com

IFC Certification Ltd.

IFC Certification Ltd offers both wood and steel fire door certification against the test requirements of British and European standards.

The company also runs Installer Certification Schemes, a Fire Risk Assessment Certification Scheme and offers Site Inspection Services.

For further details, see IFC Certification Ltd. website:
www.ifccertification.com

PRODUCT CERTIFICATION & INSTALLATION SCHEMES

Loss Prevention Certification Board (LPCB)

LPCB is the approval brand of BRE Global, offering third-party certification for fire and security products, services and companies.

The list of LPCB approved products and services is compiled in The Red Book, a useful reference point for specifiers and end users.

For the most up-to-date list visit:
www.redbooklive.com/browse
or download a Red Book App for Apple, Android or Windows.

BlueSky Certification

This UKAS accredited certification body runs a fire door scheme designed to verify that the products are manufactured to the specification that was initially tested, to ensure reliable performance in the case of fire.

For further details and a list of current scheme members see:
www.blueskycert.com/bluesky-schemes

Fire Door Observation Checklist

On this page you will find some useful observations that should be made for each of the fire doors in your facility. This list is not exhaustive, and should not be used as a substitute to any recommendations from the Local Fire and Rescue Service and/or Building Control Authorities, but is a good place to start:

Door Fully Closing

- [ ] Does the fire door fully close & shut tight by use of its own self closing device?
  No - remedial work is needed
- [ ] Does the fire door slam shut with force?
  Yes - Self closing device requires adjustment to dampen the closing action

Door Closer Operation

- [ ] Has the door closing arm been separated from the frame?
  Yes - Reaffix
- [ ] Is there any oil leaking from the door's self closing device
  Yes - New closing device required

Door Handles

- [ ] Are the door handles functioning correctly? Are they loose or missing?
  Take appropriate action as necessary, including reporting to maintenance as a priority repair

Door Seals

- [ ] Are the intumescent and/ or cold smoke seals in good condition, not missing or damaged?
  If damaged or missing must be replaced with like for like (contact the door manufacturer if type not known)

Glazing in Door

- [ ] Is the glazing in the fire door loose, does it rattle or is it broken?
  Yes - requires replacing, contact manufacturer to determine whether it can be done on site
- [ ] Are the Vision Panels in the door clear and unobstructed to provide safety to door users on both sides of the leaf?
  No - requires immediate action

Door Hinges

- [ ] Are the hinges in good condition? (missing screws? leaking oil?)
  No - requires immediate action

Door Hold Open Devices

- [ ] Electromagnetic hold open not working - units hanging off door or walls etc.
  Yes - requires immediate repair
- [ ] Is something wedging the door open?
  Yes - remove obstruction, only an approved device complying with BS 5839 may hold open a fire door.

Door Leaves

- [ ] Are door leaves in good condition? Are they free from damage?
  No - remedial work or replacement is needed
- [ ] Are door leaves sitting against the door stop? (i.e. not distorted)
  No - requires replacing

Door Frame

- [ ] Is the door frame firmly attached to the wall?
  No - remedial work is needed
- [ ] Are operating gaps between door leaves and door frame less than 4mm? Is the under door threshold gap consistent and not impeding door operation?
  No - requires immediate action

Door Signage

- [ ] Is the door marked clearly with appropriate signage?
  No - re-affix correct signage

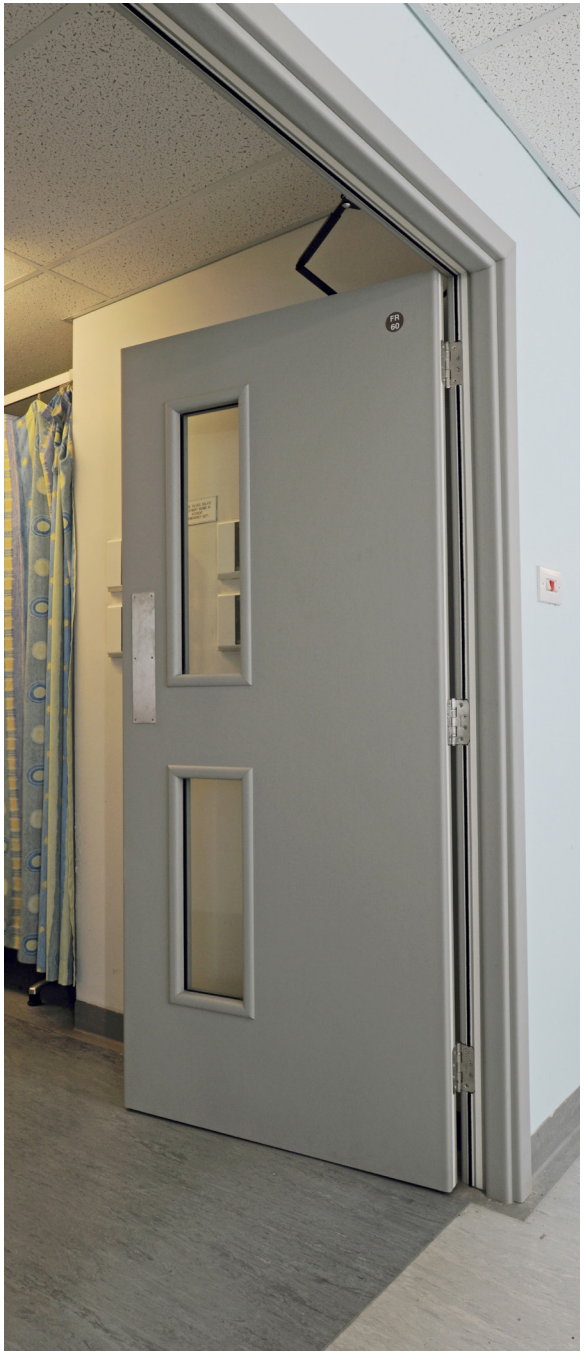
Useful Documents for Logging Maintenance

Example Door Check Record Sheet

DATE	DOOR IDENTIFICATION NUMBER	FAULTS & REMEDIAL ACTION	NAME & SIGNATURE
24/06/19	G/2	Leaking oil from overhead door closer - Maintenance Request submitted 28 June Ref: 12345	J Bloggs J BLOGGS
24/06/19	1/4	Intumescent strip missing from edge of door - Maintenance Request submitted 28 June Ref: 12346	J Bloggs J BLOGGS

Example Fire Door Register

DOOR NO:	LOCATION	DOOR RESISTANCE (MINS)	SMOKE SEAL / INTUMESCENT STRIPS	SINGLE OR DOUBLE SWING	DOOR CLOSURE	DOOR HOLD OPEN MECHANISM	GLAZING
G/1	Ground Floor corridor o/s Room G06	30	S/S = Yes I/S = Yes	Double Swing	Floor Closure	No	Yes
1/2	First Floor Corridor to Lab 123	30	S/S = No I/S = Yes	Single Swing	Over Head	Yes (electromagnetic)	Yes



Acrovyn® Doors and Door Protection

Acrovyn® fire doors are the ideal safety solution for high traffic areas where damage is regular and significant. Impact resistant, with a wide range of cladding, frame, glazing and beading options, Acrovyn® 30-minute and 60-minute fire doors can be supplied under BM TRADA Q-Mark certification, guaranteeing their quality and reliability.

Acrovyn® door protection can be applied in strategic areas to significantly extend a standard door's lifespan. The range includes edge protection, door cladding, kick and push plates, and door frame protection. Available in a range of options and colours, each solution presents a simple, cost-effective solution to repairing and safeguarding doors without compromise to their function.

Visit: **www.c-sgroup.co.uk/products/acrovyn-impact-resistant-doors**

Useful Reading and References

BS 8214:2016, Timber-based fire door assemblies - Code of practice

BS 9999:2017, Fire safety in the design, management and use of buildings. Code of practice

Regulatory Reform (Fire Safety) Order 2005. London: The Stationery Office.

The Building Regulations 2000 – Approved document B – Volume 2: Fire safety – Buildings other than dwellings. London: The Stationery Office, 2019 edition.

Department for Communities and Local Government; Series of documents on: Fire safety – Risk assessment London: **www.gov.uk/government/collections/fire-safety-law-and-guidance-documents-for-business**

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If you have any questions or comments we'd love to hear from you, please get in touch via:

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ASDMA MEMBER Architectural & Specialist Door Manufacturers Association

Fire Door Manufacture BMTRADA

bsi. ISO 14001 Environmental Management
EMS 634438

bsi. ISO 9001 Quality Management
FM 21206

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