



A GUIDE FOR SELECTING FLAT ENTRANCE DOORSETS

A publication for housing associations,
landlords, building owners and local
authorities in England

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Contents

	Page No.
Introduction	2
1. What is a doorset?	3
2. Why is selecting factory prepared doorsets important?	3
3. What to look for in terms of performance for fire	4
4. What to look for with third-party certification for fire	4
5. What to look for regarding security	5
6. Other performance affecting flat entrance doorsets	5
7. Glazing considerations	6
8. Assessments – what to be aware of	6
9. Installation	6
10. Maintenance	6
11. Multi-occupancy buildings	6
12. Government advice to Building Control	6
13. Further guidance	7

Introduction



Following the tragedy of Grenfell Tower in June 2017, several not for profit organisations with expertise in doorsets and fire safety have come together to provide guidance that will explain what to look for in a flat entrance doorset, how this relates to latest advice supplied by Government (MHCLG) and why third-party certification of fire doorset manufacture, installation and maintenance is a critical part of fire protection. This guidance only applies when specifying, purchasing, or installing new doorsets.¹

This publication references Building Regulations for England but is likely to be applicable in England and Wales, notwithstanding the devolved powers of the Welsh Administration, in relation to building regulations.

1. What is a doorset?

BS EN 12519 defines a doorset as “supplied complete with all essential parts from a single source and for which the main intended use is the access of pedestrians.”

A doorset is a whole system, including but not limited to: door leaf, door frame, intumescent seals, smoke seals (as applicable), hinges, hardware, signage, glazing, glazing system, door closer and any fanlights and sidelights — all designed and tested to perform as one unit by the doorset manufacturer and certified as such.

It is recommended that a fire doorset is factory prepared. This means it is machined for components (tolerances included), prior to arriving on site, and all components come from one source of supply, i.e. the manufacturer.

All work is completed under factory production control and ideally audited by a third-party, thereby ensuring the complete specification of the doorset at the point of production. The doorset is manufactured to size (including tailored sizes for existing buildings) and importantly, produced within the test data remit of the manufacturer.

The Responsible Person² and all parties involved must check that there is appropriate test data for the doorset and that the third-party certification is current and correct for the doorset.

Flat entrance doorsets have an essential role as the ‘gateway’ to the dwelling. They not only need to keep a dwelling protected, be it from intruder attack or weather conditions (if external) as well as assisting with conserving energy, they importantly need to perform in the event of a fire to protect occupants, restricting fire from entering or escaping from a flat. Flat entrance doorsets must always also offer protection from smoke leakage.

2. Why is selecting factory prepared doorsets important?

A complete doorset provided by the manufacturer is the end product for which the manufacturer is responsible, whereas a door assembly is reliant on components and materials derived from several sources and so the onus is on the person/s sourcing the door assembly to provide the correct end product and the correct evidence of performance.

The reliability of the flat entrance doorset with fire resistance and smoke control is important because of how it has to perform.

Considered a critical fire safety measure, it not only protects occupants, but also controls the spread of the fire to allow for an easier and safer escape route.

BS 9999:2017 definition states: “a fire door or shutter [is] provided for the passage of persons, air or objects which, together with its frame and furniture as installed in a building is intended (when closed) to resist the passage of fire and/or gaseous products of combustion and is capable of meeting specified performance criteria to those ends.”

A door assembly, which is often prepared on site, comprises a door leaf with compatible items: frame, hardware, glazing, intumescent seals, door closers and is assembled together from several sources of supply.

However, a door assembly is not the same as a factory prepared complete doorset. A factory prepared doorset from a single source is constructed to exacting standards and tolerances, which is critical for fire and security performance.

The Responsible Person and all parties involved must ensure that the door assembly is suitable and fit for purpose and check the third-party certification is current and correct for all components within the certification scheme.

3. What to look for in terms of performance for fire

There is some confusion in the marketplace on what sort of reports or certificates to look for with a fire rated doorset. Generic terms including 'test certificate' and 'desk top assessments' are not clear.

Below gives an explanation and overview.

Test report for fire resistance

For fire resistance testing, a test is undertaken to the performance standard for doorsets, which is either

BS 476-22 or EN 1634-1. This primary test should be undertaken at a UKAS approved test house for fire door manufacture testing, where there are qualified experienced test engineers. The test is performed for a requisite period, normally 30 minutes or possibly 60 minutes. A primary test report will be produced detailing what was tested and what was achieved. This will normally be in the name of the doorset manufacturer who has put that doorset design in for test.

Associated assessment

A doorset manufacturer may also have an assessment³ (see also section 8) associated with the primary full-scale test and this may draw on further primary test evidence called primary and secondary data. This is put together by an organisation with the necessary experience, e.g. organisations listed as notified bodies in accordance with the European Construction Products Regulations or laboratory accredited by UKAS for the relevant test. The assessment will include details on the test standard and assessed parameters that are permitted, including leaf sizes, configurations and hardware.

Cascaded evidence of fire performance

In some instances, a doorset supplier may, with permission, use the fire test reports/assessments of another company as an alternative to their own fire test evidence. This would normally be that of a doorset or door blank manufacturer. This type of evidence is known as 'cascaded test evidence'. This means that the door supplier does not conduct testing of their own. To ensure traceability the door supplier's use of the cascaded evidence should be formally assessed by a third-party certification scheme. The door supplier is a member of a third-party certification scheme in their name, but the test report or assessment remains in the name of the doorset or door blank manufacturer.

NB: Building Regulations currently permit evidence of performance to BS 476-22 to be used. This situation will change once CE marking of fire doors becomes a requirement; for CE marking only evidence of performance to EN 1634-1 can be used.

4. What to look for with third-party certification for fire

Certification schemes differ in the way they operate and sometimes this is where terminology can be confusing. Certification is a process involving independent third-party testing, inspection and random auditing, intended to ensure that the product or service supplied, complies with an agreed standard. Only products subjected to this process can be properly described as certified. Mere possession of a test report and an assessment is not sufficient.

Third-party certification for fire

To ensure that what is tested is indeed what is produced, third-party certification through an accredited certification body provides that assurance. Third-party certification means that the manufacturer/producer is audited and records and materials are verified.

To check if third-party certification is current and correct, it should be checked on the issuing authority's website to confirm it truly is a valid document of status held.

Government Advice Note 16, point 19⁴, highlights the importance of third-party certification by a UKAS accredited body providing building owners and landlords with greater assurance of doorset performance. Additionally, the Advice Note states: "Doorsets certificated and supplied to the same specification for fire, smoke and security performance will provide additional assurance of performance, as will certification in the name of the company producing the doorset with the doorset name listed on the certificate."

Third-party certification schemes importantly check if there is an ISO 9001 scheme⁵ or a factory control system in place. This is important for materials and process consistency.

The method of delivery to the market place through the certification scheme may either be via a single source through a named manufacturer or via several sources through named manufacturer/suppliers within a certification scheme.

A breakdown of the different types is as follows:

- Some third-party certification schemes operate with the provision of a certificate and a listing of the doorset ranges that come under the scheme. These are often complete doorsets – supplied as such, from a single source supplier. The certificate states the doorset reference/name. Traceability is back to one source – the manufacturer.
- Some third-party certification schemes list approved parts based on a range of testing of hardware and other items not just based on that given door manufacturer but through the 'pooled' testing of hardware. This is because products may be sourced and put together from several sources. Normally such doors are termed 'door assemblies'. Each part has its own certificate to denote it is part of the door assembly. As traceability is back to several suppliers, the onus is on the specifier to correctly identify, source and install the correct items for the door assembly.

Certification does not exist specifically for smoke control as it does for fire resistance, so it is important to check if a smoke control test has been carried out on the doorset. Just because it is a fire doorset does not mean that it automatically is covered for smoke or that smoke seals can just be applied.

Look for a test report for the complete flat entrance doorset to BS 476-31.1 or EN 1634-3.

This is important as incorrect smoke seals or badly fitted smoke seals will have an impact on how the fire doorset performs. It is important that any seals intended to be applied to the fire doorset are included in the doorset fire test.

Latest MHCLG documentation *Building a Safer Future – An Implementation Plan*⁶ references MHCLG Advice Note 16 in Annex B: The story to date. The Advice Note highlights the importance of certificated fire doorsets, which are a complete end product provided by the doorset manufacturer.

The document clearly states the importance of:

- third-party certification of doorsets
- professional competence of those people installing and maintaining doorsets
- the need to avoid performance specifications being compromised by cost pressures
- the need for record keeping, safety product labelling and traceability.



5. What to look for regarding security

Third-party certification schemes do exist for security. Often with flat entrance doorsets, residents feel vulnerable to crime to the extent that sometimes exterior gates are put across front entrance doorsets which can impede the fire service at time of access. For this reason, doorsets tested to recognised security standards (PAS 24:2016 or similar) and are dual certified⁷, can give residents reassurance without having to resort to extra security measures.

Designing out crime in doorsets is a feature that has long been associated with social housing in existing buildings as well as new build. The police initiative, Secured by Design (SBD), adopts principles to reduce crime and the fear of crime.

Dual certification

To acquire SBD approval, the doorset must carry third-party certification for security. Where a flat entrance doorset also requires fire resistance, SBD has campaigned for the doorset design specification of a flat entrance doorset to be the same for security and fire resistance. This is dual certification. This applies for both existing residential buildings as well as for new buildings under Approved Document Q (ADQ) for Security in Dwellings.

Why is this important?

In all instances the design specification of the doorset that is fire tested must be identical to that of the samples which were subject to the security performance testing and throughout manufacture. This is because sometimes security features added to the door can compromise its fire resistance.

Government Advice Note 16, point 5 states: "This Advice Note primarily concentrates on fire safety; however, front doors should also meet security requirements set out in Approved Document Q. There are also requirements for doorsets in other relevant Building Regulations guidance included in other Approved Documents including part E, L & M.

Therefore, it is imperative that doorsets are designed to meet all of the relevant requirements in one package i.e. the same specification."

6. Other performance affecting flat entrance doorsets

The operation and durability of a flat entrance doorset is crucial as it is used several times a day. The performance standard BS 6375-2 tests for various operational aspects, including resistance to repeated opening and closing; mechanical strength; soft and heavy body impact. A test report for this industry standard provides evidence of the flat entrance doorsets' operational criteria.

For flat entrance doorsets that are balcony sited or exposed to weather conditions, the industry standard BS 6375-1 tests for air permeability, water tightness and wind resistance. An exposure category and classification are also stated. This information is provided in a test report to BS 6375-1 and gives evidence of the doorset being fit for purpose for weathering.

Energy and fuel conservation are key factors in everyday lives, from the perspective of comfort, cost and the environment. A door replacement programme where the door and frame are being replaced, and where there is a conditioned environment separated from a non-conditioned environment, means that doorsets should have a U value which meets Approved Document L requirements⁸. The industry standard test EN ISO 10077 for thermal transmittance denotes what has been tested (glazed/unglazed doorsets/threshold types) and what U values have been achieved.

All the aforementioned criteria are based on the same doorset design specification, so it is possible to have doorsets tested and third-party certified for fire resistance and for security and to have additional test evidence through industry standard testing for operation, weathering, thermal transmittance and acoustics.

Only doorsets supplied as a complete product from a single source deliver the performance standard for fire safety, security, thermal transmittance and other criteria.

7. Glazing considerations

Fire resisting doorsets should be factory prepared in controlled conditions and this includes glazed fire resisting doorsets.

The type of glazing unit must be tested as part of the overall configuration for all performance testing.

Glazing considerations from your flat entrance doorset manufacturer should include: fire integrity, fire insulation, heat radiation, resistance to UV light, safety impact (BS 6262/BS EN 12600); security (attack resistance to BS EN 356), thermal insulation (specific U value contributing to overall door thermal transmittance) and weathering if balcony requirements or exposed to weather conditions.

For this reason, specifiers should consult with fire doorset manufacturers to ensure that their flat entrance doorsets comply with their requirements for building regulations.

In flat entrance doorsets where the glazing is asymmetric, it must be tested from both sides as part of the doorset to demonstrate compliance with Approved Document B, appendix B Fire Doors.

8. Assessments – what to be aware of

Global Assessments, Field of Application reports or Engineering Assessments are produced for the manufacturers based on technical parameters.

The name on the aforementioned assessment will be in the name of the doorset manufacturer and state the name of the doorset range. This should also be reflected in the company name listed on the certificate for third party certification together with the product name.

When the doorset is being supplied from a single source it is the responsibility of the doorset manufacturer to supply product that conforms to the test evidence remit. However, ask the manufacturer to reference or discuss the test report together with the assessment as you require.

Look out for assessments that do not reference primary test evidence, e.g. “has to our knowledge not been subject to a fire test to the standard to which this assessment is being made.”

A Global or Technical Assessment, Field of Application Report or Engineering Assessment will normally be conducted either by a laboratory accredited by UKAS for conducting the relevant test or by suitably qualified fire safety engineers governed by criteria laid down by the UK Fire Test Study Group⁹.

A Global Assessment, Field of Application Report or Engineering Assessment does not mean that a door supplier has third party certification in place or that they have factory production control or ISO 9001 systems in place.

Check the door supplier has the certification in their name with the product listed on the certificate.

9. Installation

Fire doorsets should be installed by third-party certified installers referencing the manufacturer's installation instructions.

The importance of good qualified installation is crucial to how the doorset will perform in the event of fire.

BS 8214:2016 lays down guidance and references the importance of adhering to manufacturers' instructions. The latter will include the fire stopping materials that can be used as per primary test evidence.

10. Maintenance

Under the Fire Safety Order (FSO) 2005, there is a duty to maintain fire doorsets in sections 17.1¹⁰ & 38.1. A regular maintenance routine should be carried out by third party certified maintainers referencing manufacturers' instructions or by the manufacturer. Any repairs should be recorded and carried out in line with the manufacturer's instructions.

11. Multi-occupancy buildings

Although this guidance is predominantly aimed at HRRB (High Risk Residential Buildings), the risks associated with other multi-occupancy buildings still exist at levels less than ten storeys high.

Therefore, other buildings that need to take this advice into consideration when installing and maintaining communal doorsets, include, but not exclusive to:

- Hotels
- Student accommodation
- Care homes or sheltered accommodation
- Hospitals

12. Government advice to Building Control

The MHCLG circular dated 31st July 2018 advises:

“.. building control bodies should check that test evidence is presented of exposure to fire for both sides of the door, to demonstrate compliance with the requirements of Approved Document B.”

Advice Note 17 further clarifies that the above does not apply to timber and metal doorsets but specifically to composite doorsets; EN 1634-1:2014 states: “Examples of such materials are inorganic based doorsets (e.g. calcium silicate, vermiculite, fibre cement-based boards) and plastics-based doors (e.g. glass reinforced polyester, PVC).”

However, where there is asymmetric glazing or where the weakest side of attack from fire cannot be identified, then the doorset must be tested from both sides within a fire test to BS 476-22 or EN 1634-1.

On 18th December 2018 the Government issued its view on assessments in lieu of tests through a final impact assessment. It proposes to restrict the use of assessments and more tightly control how they are undertaken, in particular stating that assessments should not be used to justify the performance of GRP composite doors. Where an assessment based on the extended application of test results is permitted, a standard for extended application on test evidence should be followed.

13. Further guidance

MHCLG guidance recommends that if there is any doubt on flat entrance doorsets meeting the fire resistance or smoke leakage requirements, that they be replaced. It advises that tests are carried out at UKAS accredited test houses.

MHCLG guidance advocates checking the product name on the test reports is the same as the company placing the product on the market.

MHCLG states it is imperative that it is the same design specification for the flat entrance door for all aspects of performance across the range of building regulations that need to be met.

Fire Safety in purpose-built blocks of flats – a publication by the Local Government Association.

BS 9999 is the code of practice for fire safety in the design, management and use of buildings. This document provides information on fire door rating and position of fire doors for safe egress.

BS 8214 provides detailed guidance on the installation of timber fire doors to the surrounding substrate.

Further information is available from **dhf** (Door & Hardware Federation), **SBD** (Secured by Design), **FIA** (Fire Industry Association):

Door & Hardware Federation: www.dhfonline.org.uk

Secured by Design: www.securedbydesign.com

Fire Industry Association: www.fia.uk.com

Fire safety: Approved Document B

<https://www.gov.uk/government/publications/fire-safety-approved-document-b>

Access to and use of buildings: Approved Document M

<https://www.gov.uk/government/publications/access-to-and-use-of-buildings-approved-document-m>

Conservation of fuel and power: Approved Document L

<https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-l>

Security in dwellings: Approved Document Q

<https://www.gov.uk/government/publications/security-in-dwellings-approved-document-q>

Resistance to sound: Approved Document E

<https://www.gov.uk/government/publications/resistance-to-sound-approved-document-e>

References

1. The adequacy of existing doorsets is addressed through the fire risk assessment – see LGA publication: “Fire safety in purpose-built blocks of flats.” This is also referenced in MHCLG guidance note 16 MHCLG/BSP/Advice Note/16/310718.
2. The Fire Safety Order (FSO) 2005 defines the ‘Responsible Person’ as the following: (a) in relation to a workplace, the employer, if the workplace is to any extent under his control; (b) in relation to any premises not falling within paragraph (a) — (i) the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by him of a trade, business or other undertaking (for profit or not); or (ii) the owner, where the person in control of the premises does not have control in connection with the carrying on by that person of a trade, business or other undertaking.
3. This type of technical assessment is necessary to pull together evidence from primary data and secondary data, for example, primary full-scale test evidence for a doorset and additional full-scale test evidence for side panels and fanlights. Not all can fit into the same test rig, so the separate test evidence needs to be collated under an assessment. Additionally, the assessment is needed for the extended field of application under strict guidelines within the fire test standards, for example, smaller sizes.
4. The full Advice Notice can be found: <https://www.gov.uk/government/publications/advice-for-building-owners-on-assurance-and-replacing-of-flat-entrance-fire-doors>.
5. ISO 9001 is a recognised quality management system and an internationally recognised standard drawn up by the International Organisation for Standardisation. The quality management system is implemented to help organisations ensure that they meet the needs of customers and other stakeholders while meeting statutory and regulatory requirements related to a product or service.
6. A copy is available to download from the dhf website https://www.dhfonline.org.uk/fire_safety/grenfell-update/23.htm
7. Dual Certification is a doorset that has undergone full scale recognised industry standard tests for fire resistance and for security based on the same design specification and has independent third-party certification for both Fire and Security. The Security scope denotes this and it is reflected in the Security certificate stating the doorset name/type.
8. Approved Document L comprises 4 parts, including L1B for existing dwellings and L1A for new dwellings. www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-l
9. FTSG is an association of UK-based fire test laboratories and consultants. Guidance is produced by PFPF (Passive Fire Protection Federation) and endorsed through membership of the Enforcement Authority Liaison Group.
10. <http://www.legislation.gov.uk/uksi/2005/1541/article/17/made>



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**1st Floor
10 Victoria Street
London
SW1H 0NN**

Tel: 0203 8623 999

Email: enquiries@police-cpi.co.uk

Web: www.securedbydesign.com