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Introduction

Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international and European standards, comments will be reviewed by the relevant UK national committee before submitting the consensus UK vote and comments. If the draft standard is approved, it is usual for the resulting published standard to be adopted as a British Standard.

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UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

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Fire-resisting and smoke control doors – Practical considerations concerning specification, design and performance in use – Code of practice

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on XX Month 202X. It was prepared by Subcommittee B/538/1, *Windows and doors*, under the authority of Technical Committee B/538, *Doors, windows, shutters, hardware and curtain walling*. A list of organizations represented on these committees can be obtained on request to the committee manager.

Supersession

This British Standard supersedes BS 8214:2016, which is withdrawn.

Information about this document

This is a full revision of the document, and introduces the following principal changes:

- The standard is not limited to fire door assemblies but covers fire doors however they are supplied whether this is as door assemblies, doorsets or door kits.
- The standard is not limited to timber fire doors but covers fire doors of many materials including timber, steel, glazed metal and composite designs.
- The standard includes guidance on both national and European classifications for fire doors.
- The order of the sections has been changed to reflect the construction process with recommendations concerning roles and responsibilities preceding specification and supporting evidence followed by guidance on design, installation, handover and maintenance.
- The clauses concerning smoke control provide more information on the use of seals while the reliance on intolerant construction recommendations that were difficult to achieve has been removed.
- The guidance on sealing the interface between fire doors and the surrounding structure has been clarified in respect of the recommended evidence supporting the use of materials including stone wool, mastic and foam sealants.
- The guidance in this standard is intended to complement the guidance given in BS 9999 and BS 9991.

Fire doors form part of the passive fire protection of a building.

BS 9999, BS 9991 and other documents, such as those providing building regulation guidance, recommend both the performance rating of fire doors, and the location of fire doors within a building, that are necessary to protect escape routes and to control the internal spread of fire and smoke through measures such as compartmentation. The rating of fire doors is specified by the building designer, possibly in conjunction with fire safety professionals, using these recommendations or the fire strategy developed to meet the functional objectives of the building regulations and to control the hazard from fire and smoke to acceptable levels of risk.

This British Standard identifies the important parameters in the specification, installation and maintenance of fire doors that contribute to the successful attainment and retention of the levels of performance deemed appropriate.

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Use of this document

As a code of practice, this British Standard takes the form of recommendations and guidance. It is not to be quoted as if it were a specification. Users are expected to ensure that claims of compliance are not misleading.

Users may substitute any of the recommendations in this British Standard with practices of equivalent or better outcome. Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions of this document are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. “organization” rather than “organisation”).

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Particular attention is drawn to the following regulations and legislation:

- Regulation 7 of the Building Regulations 2010 [1];
- Regulation 8 of the Building (Scotland) Regulations 2004 [2];
- Regulations 23 and 24(2) of the Building Regulations (Northern Ireland) 2012 [3];
- the Building (Amendment) (Wales) Regulations 2014 [4].
- the Building Safety Act 2022 [5];
- the Fire Safety Act 2021 [6];
- the Regulatory Reform (Fire Safety) Order 2005 [7];
- the Fire (Scotland) Act 2005 [8]; and
- the Fire Safety Regulations (Northern Ireland) 2010 [9].

0 Introduction

Fire doors are required to provide two main functions:

- a) to maintain any compartmentation of buildings, which has been introduced to limit the size and spread of fire in order to control the perceived risk; and
- b) to provide protection for persons escaping from a fire, allow access to protected escape routes, both vertically and horizontally, without any loss of fire resistance, and limit smoke movement in the structure forming these routes, e.g. protected corridors, lobbies, stairways and shafts.

In other respects, fire doors can have several other properties and functions to fulfil, as for any other door providing access into and around buildings, in a variety of external and internal situations. However, it is important that those characteristics do not compromise the achievement of the primary safety properties of fire doors in use, as installed.

Basic but most important requirements are for the fire door to operate easily, without hindrance or obstruction, and be safe for all likely users in opening and closing, especially to close fully and effectively without excessive force. Safety also includes protection against impact injuries (especially concerning glazing) and accidental trapping risks at the closing edge or joining edge for double doors.

Other functions vary depending on the situation as applies where the door is to be used. The range of required and desired functions can be challenging including, for example, security and controlled access with visibility and building separation, and sound insulation (acoustic sound control), in accordance with the purpose of the building and its occupancy characteristics. Wider attention on security-safety aspects can also include some special protection and shielding properties for fire doors in some locations (e.g. hospital treatment areas). Basic properties such as energy efficiency, weathering protection and durability in repeated use all apply throughout what can be an extended working life for a fire door.

Those various combinations, combined together for optimum performance, can require detailed attention on fire door specification, design and manufacturing. 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 might be based on fire safety engineering approaches governed by procedures defined in BS 7974.

Fire doors are key elements in the overall design and fire safety strategy of a building, and they need to function together in combination with other parts of the construction, and other systems, especially walls, partitions, ceilings, floors and smoke evacuation. It is important at the outset when the requirement specification is defined that any conditions that apply which could affect the performance of the door in use are fully provided and explained for the door manufacturer, so that there are no surprises after the door has been manufactured and supplied to site.

Fire door sound insulation guidance can be found in BS EN ISO 10140-2 and BS EN ISO 717-1.

Weather performance guidance for doors can be found BS 6375-1.

Durability performance guidance for doors can be found in BS 6375 (all parts).

Security performance guidance for doors can be found in, for example, PAS 24 and similar standards listed in Approved Document Q [10]. See further guidance in Annex A.

Annex B contains guidance regarding fire door ratings and classifications.

Annex C summarizes the information to be obtained from manufacturers.

Annex D provides guidance on essential and non-essential door hardware.

1 Scope

This British Standard gives recommendations and governing principles for the design, specification, installation and maintenance of pedestrian fire resisting and smoke control doors of all types and materials (e.g. including timber, metal, composite doors) installed in the vertical or horizontal plane. The recommendations within this British Standard are applicable to the performances of fire doors when installed with reference to relevant and applicable supporting evidence.

This British Standard is applicable only to doors that are designed to provide fire resistance or smoke control when tested for fire resistance in accordance with BS 476-22 and BS EN 1634-1 and smoke control in accordance with BS 476-31.1 and BS EN 1634-3. This British Standard is applicable to new builds and refurbishments/replacements, maintenance, improvements (RMI) and modifications.

The intended users of this British Standard are all those who are involved in providing fire doors for buildings, and those involved in considering performance in use, for example:

- a) building designers and specifiers (e.g. architects, architectural technicians, consultants, engineers, contractors and buyers who effectively take on specifier roles);
- b) product manufacturers and supply chain providers, including building contractors, installers [principal contractors, specialist penetration seal contractors, mechanical and electrical (M&E) contractors, those who carry out maintenance and repair work on fire doors];
- c) inspectors (fire risk assessors and door inspectors, building control bodies, clerks of works, site managers, supervisors, competent persons);
- d) fire and rescue authorities;
- e) clients (owner occupiers, building owners, residents);
- f) insurers; and
- g) regulators, e.g. Building Control, the Building Safety Regulator, the Home Office.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document¹⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 476-20, *Fire tests on building materials and structures – Part 20: Method for determination of the fire resistance of elements of construction (general principles)*

BS 476-22, *Fire tests on building materials and structures – Part 22: Method for determination of the fire resistance of non-loadbearing elements of construction*

BS 476-31.1, *Fire tests on building materials and structures – Part 31: Methods for measuring smoke penetration through doorsets and shutter assemblies – Section 31.1: Method of measurement under ambient temperature conditions*

BS 4787-1:1980, *Internal and external wood doorsets, door leaves and frames – Part 1: Specification for dimensional requirements*

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.

BS EN 179, *Building hardware – Emergency exit devices operated by a lever handle or push pad, for use on escape routes – Requirements and test methods*

BS EN 1125, *Building hardware – Panic exit devices operated by a horizontal bar, for use on escape routes – Requirements and test methods*

BS EN 1154, *Building hardware – Controlled door closing devices – Requirements and test methods*

BS EN 1279-5, *Glass in building – Insulating glass units – Part 5: Product standard*

BS EN 1366-4, *Fire resistance tests for service installations – Part 4: Linear joint seals*

BS EN 1529, *Door leaves – Height, width, thickness and squareness – Tolerance classes*

BS EN 1634-1, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows*

BS EN 1634-3, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 3: Smoke control test for door and shutter assemblies*

BS EN 1935, *Building hardware – Single-axis hinges – Requirements and test methods*

BS EN 13637, *Building hardware – Electrically controlled exit systems for use on escape routes – Requirements and test methods*

BS EN 12209², *Building hardware – Locks and latches – Mechanically operated locks, latches and locking plates – Requirements and test methods*

BS EN 14846, *Building hardware – Locks and latches – Electromechanically operated locks and striking plates – Requirements and test methods*

Other publications

[N1] PASSIVE FIRE PROTECTION FORUM. *Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence*. PFPF, 2021. Available at: <https://asdma.com/specifier-bulletins/passive-fire-protection-forum-pfpf-guide-to-undertaking-technical-assessments-2021/>

3 Terms and definitions

For the purposes of this British Standard, the following terms and definitions apply.

3.1 architrave

trim that serves to mask the joint between a door frame and the surrounding structure, which can be integral with the frame or a separate element

3.2 assessment

technical evaluation of the likely performance of a component or element of structure if it were to be subjected to a relevant standard fire test

NOTE Assessments are based on sufficient relevant test evidence and provide a defined scope of approval for a particular design or range of designs and is an opinion of the likely performance of a component or element of structure if it were to be subjected to a standard fire test.

[SOURCE: PFPF *Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence* [N1]]

² This British Standard also gives informative reference to BS EN 12209:2016.

3.3 bottom of door seal

any flexible element, generally combined with a rigid support, intended to act as a barrier to draughts, smoke or sound waves, and bridging the gap between the bottom of the door and the threshold or finished floor level

3.4 competent person

person, suitably trained and qualified by appropriate skills, knowledge and practical experience, and provided with the necessary instructions, to enable the required task(s) to be carried out correctly with regard to the appropriate behaviours for the carrying out of those tasks

3.5 competency

having and being able to demonstrate the appropriate core skills, knowledge, expertise and experience for the application, relevant to the required design and performance requirements

3.6 composite door

door made from different materials as substantial components in combination (for example, for the door leaf core, skins and frame) rather than substantially from one main defining characterising material, such as applies to timber and metal doors

NOTE For example, the door leaf and/or door frame are manufactured as a composite product, e.g. a door leaf manufactured using a timber sub-frame, polymeric foam core and thermoplastic or thermoset door facings.

3.7 designer

any individual, partnership or organization who in course of their work prepares, modifies or changes a building or product design, or arranges for, or instructs, any person under their control to do so

3.8 door frame

fixed surround into which are fitted one or more door leaves

NOTE A door frame can also be designed to surround other panels, and can include sill, threshold, architraves or other cover moulds. A door frame can be a separate item to be fixed to the adjacent structure, or it can be an integral part of a wall or partition.

3.9 Door hardware

3.9.1 door hardware

small components, usually metal, used mainly for the operation or support of doors

3.9.2 essential door hardware

items that are necessary to achieve the fire-resisting performance of a fire door when incorporated into a building

NOTE Guidance on essential door hardware is given in Annex D.

3.9.3 non-essential door hardware

items that are not necessary to achieve the fire-resisting performance of a fire door, but which if fitted might affect that performance (which for fire resistance is evaluated by test of the whole assembly as a single entity)

NOTE Guidance on non-essential door hardware is given in Annex D.

3.10 door leaf

hinged or pivoted part within a door frame

3.11 doorset

complete assembly which is specified for use and installed as a coordinated and controlled single entity, with applicable supporting evidence

NOTE 1 A doorset includes prepared door leaves (which can be of a specialized proprietary construction) and a door frame, together with hardware items, fire-resistant glazing, various seals and other necessary components, as defined and specified for the application. A doorset can also include associated over panels and side panels (which can include fire-resistant glazing).

NOTE 2 There are different ways and routes through the market for a doorset to arrive on site and come together for fitting and installation. The essential fire door performance requirements for the installed door apply irrespective of how the doorset is provided. All in the chain of responsibility have a duty of care to ensure that the finished door where it is to be used can be shown to comply with the defined fire door functional requirements (with reference to supporting evidence).

NOTE 3 Normal practice is for the responsible source to be identified for the doorset specification, the doorset as prepared and its supporting evidence. The source can be, for example, a door system provider, a door manufacturer, also a distributor or agent acting as a manufacturer providing the door in their name. The organization providing and preparing the door on site for fitting and installation might, in some circumstances, find themselves effectively the responsible source for the doorset (as well as being responsible for installation).

NOTE 4 An uncoordinated assembly, produced by bringing together parts and components without following a specification based on supporting evidence for the whole assembly, might mean that the required fire door performance criteria are not met. Although each individual item might have evidence for use generically in fire doors, that does not automatically ensure that this type of assembly, as a unit, will function as a fire door in key respects. Applicable supporting evidence of performance is required for the fire door as a designed and coordinated single entity. The same applies if components are changed and substituted in a doorset specification without confirmation by the applicable supporting evidence.

3.12 drop seal

flexible seal bridging the gap between the bottom of the door and the threshold or finished floor level and intended to act as a barrier to draughts, smoke or sound waves, but combined with a mechanism such that the seal is automatically forced downwards by spring pressure when the leaf is in the closed position

3.13 Field of Application Report

approved specification for a particular product or fire door design, provided in one document with a summary of the relevant and applicable test evidence, with definition of key parameters such as leaf sizes, essential parts and components as a compatible matched set, and guidance as appropriate on handling, assembly and installation

NOTE 1 A Field of Application Report in particular provides a declaration of product ownership, for clarity of product definition and traceability.

NOTE 2 Field of Application Reports are independently approved documents, normally checked by appropriately competent product assessors, confirmed by approved bodies and prepared in accordance with the principles of BS EN 15725 and also the agreed criteria provided by the Passive Fire Protection Forum's (PFPF's) Guide to undertaking technical assessments of the fire resistance performance of construction products, based on fire test evidence [N1], as supported by the Fire Sector Federation.

3.14 fire door

door that is able to resist the passage of fire and/or smoke when the door leaf (or leaves) is (are) closed, in accordance with the standard performance criteria for fire resistance and smoke leakage at ambient conditions, as required for the intended application

NOTE 1 All fire doors as installed for use have to be specified, evaluated and fitted as a doorset (see 3.11), with supporting evidence. The responsible sources for the specification, the applicable supporting evidence and supply need to be clearly identified in the supporting documentation, for validation and traceability reasons (see Clause 4).

NOTE 2 Fire doors are typically combinations of different functions in addition to the core fire safety requirements, depending on the application in each case. In many cases, including some specialized applications, fire doors therefore require a high degree of design to fulfil the complete combination of properties. There needs to be a single specification, especially where the additional requirements are themselves challenging or have in themselves a safety implication. That specification needs to be observed and followed, with reference to the supporting evidence, which can be a combination of relevant data (see Clause 5).

NOTE 3 A fire door is not to be confused with a door specifically identified as a fire exit intended for egress in the event of fire (to a place of safety, ultimately outside the building, e.g. with a panic or opening push bar, signifying signage and perhaps emergency lighting). Exit doors are not usually fire doors, except in some situations, where recommended by design guidance.

3.15 fire resistance

ability of a component or construction of a building to meet for a stated period of time some or all of the appropriate criteria specified in the relevant test standards, e.g. BS 476-22 or BS EN 1634-1

3.16 intumescent fire seal

seal used to impede the flow of heat, flame or gases, which only becomes active when subjected to elevated temperatures

NOTE Intumescent fire seals are components which expand, helping to fill gaps and voids, when subjected to heat in excess of ambient temperatures.

3.17 latch

self-engaging fastener which restrains a moveable component (e.g. door leaf) in a closed position and which can be released

[SOURCE: BS EN 12209:2016, 3.13]

3.18 lock

fastener which secures a moveable component in a closed position within a door frame and which is operated by a key or other device

[SOURCE: BS EN 12209:2016, 3.17]

3.19 seal

fitting provided to close a gap for the purpose of controlling the passage of air, smoke, water, fire, sound, etc.

3.20 smoke seal

seal fitted to the leaf edge or frame reveal for the purpose of restricting the flow of smoke at ambient temperature

3.21 supporting evidence

documentary evidence testifying to the fire resistance and/or smoke control of the fire door

NOTE Supporting evidence includes test reports and technical assessment reports. See further guidance in B.3 on supporting evidence.

3.22 technical assessment

document that extends the scope of design/application or system offered to the market, based on sufficient and directly applicable test evidence by technical evaluation of the product or system, either following a rules-based system or expert judgement

NOTE Technical assessment reports can be described by many terms, such as, Field of Application Reports, global assessments, a report on a specific individual change, direct application reports and Extended Application (EXAP) Reports.

3.23 third-party certification scheme

scheme undertaken by an independent third-party certification body that certifies conformity to the provisions of a recognized document which is appropriate to the purpose for which a product, material or process is to be used

NOTE 1 Such schemes are designed to provide a level of consistency of product and process conformity at a level of acceptable and satisfactory workmanship. Third party certification therefore provides assurance regarding product fitness-for-use and can raise confidence in the quality of performance.

NOTE 2 Third party certification is also available for important operations such as fire door installation, fire inspection and risk assessment for the accreditation of those involved in providing those services. In those respects, certification can be an important way for operators to show their core competencies in these activities.

3.24 threshold

horizontal member at the bottom of a door frame above which the door leaf rests and which forms a division at floor level between two adjacent areas

[SOURCE: BS EN 12519:2018, 3.58]

NOTE 1 The threshold could be part of the door frame, or a separate component.

NOTE 2 The threshold is separate from the floor covering.

NOTE 3 BS EN 12519:2018, Figure 14 provides an illustration of a threshold.

4 Roles and responsibilities

COMMENTARY ON **CLAUSE 4**

Attention is drawn to the Building Safety Act 2022 [5] regarding individuals involved in work concerning fire or structural safety in buildings showing they are competent to do so. This includes the appropriate skills, knowledge and experience for the role they are fulfilling. Organizations need to be able to demonstrate their capabilities in planning, coordinating, managing and monitoring work that can affect building safety risks concerning fire and structural stability.

Installing or replacing fire doors is included as building work under the definition provided in building regulations. The duty holder is responsible for the building work and making sure that the work is in accordance with building regulations.

Attention is drawn to the requirement for building regulations approval to be submitted to the appropriate Building Control Body prior to work starting.

4.1 Keeping to the fire safety specification

Fire doors should be provided with a defining product specification which includes a summary for reference of the relevant and applicable supporting evidence which demonstrates the tested fire resistance performance capability, and where applicable, smoke control performance as well.

If any changes are necessary to the received specification, those changes should not be made without informing the originating specifier and without seeking approval from the responsible manufacturer. Anyone who changes a component in a received specification should be aware they are making design considerations and might be defined as a designer under the Construction (Design and Management) Regulations 2015 [11].

Proposed modifications should be in accordance with the product specification and be similarly backed by relevant and applicable supporting evidence. Any confirmed approved changes that result, such as an alternative hardware item, should be documented by the originator of the change with an explanation and justification, as an addendum to the original defining specification.

The finished specification document, and any associated notes, should be provided to the management responsible for the fire safety of the building, to be maintained in the building records for future reference as necessary during the occupation phase, for example, when fire risk assessments or door inspections are carried out.

4.2 The specifier

NOTE 1 *Specification work is often the role of the designer, which includes architects, consulting engineers, quantity surveyors, interior designers but can be anyone who, as part of their work, causes changes that alters a design or affects a product, for example, those who specify door hardware changes. The roles and responsibilities of designers are defined under the Construction (Design and Management) Regulations 2015 [11].*

NOTE 2 *The term specifier is used to describe a designer that has responsibility for specifying the expressed wishes of the building or project owner (the client), taking into account any relevant considerations arising from the nature of the building, its purpose and the situations where the doors are to be used, including any relevant conditions that apply arising from the fire safety plan.*

The specifier should produce the door requirement specification to explain and define clearly for the door provider what performances and characteristics are required.

The originating specifier should evaluate what factors the door provider needs to be made aware of which are relevant to door design, on first contact and during subsequent discussions in the process of determining the product manufacturing specification.

The specifier should provide whatever details are necessary to the door provider at the outset which are significant for the door design, performance characteristics and safety in use, on first contact and during subsequent discussions.

NOTE 3 *A door design includes drawings, specifications, including the listing of components, associated guidance on assembly and fitting and any necessary calculations.*

The specifier should ensure that sufficient information is provided about the required design and its operation and maintenance so that all others with a responsibility for the building can fulfil their roles.

NOTE 4 See also Clause 5 on specifying fire doors.

4.3 The manufacturer

NOTE 1 The prime role of the manufacturer is to determine the appropriate product manufacturing specification that satisfies the original requirement specification as requested, subject to the key conditions that the door can be made. This is normally established in liaison with the specifier and manufacturing does not normally start until the specification has been confirmed.

The manufacturer and the specifier should confirm that the appropriate supporting evidence is available and accepted for the product specification, especially referring to relevant and applicable supporting evidence for fire resistance, smoke control and any other performance criteria as required.

NOTE 2 The overall responsibility for the manufacturer is to make and provide the door specification as agreed, at whatever levels of quality or workmanship that have been agreed, subject to contract. This applies whether for bespoke and specialist fire doors (perhaps with some high-performance specialist properties to fit the application) or routine standard production items produced in volume and perhaps provided from warehouse or factory stock.

NOTE 3 In some cases, it might be appropriate for the door manufacturer to carry out an on-site survey or inspection of the situation as applies of where the door is to be installed, including the condition of the partitioning or wall constructions and the quality of the opening as prepared. This applies especially for replacement doors. Detailed surveys on site are not normally necessary for new constructions where detailed preparation drawings are available for the door manufacturer and contractors responsible for preparing wall or partition openings.

The manufacturer's specification for the door as a complete assembly to function as a fire door in use should be the main reference for all those in the chain of custody, from the manufacturer to the installer on site, including those involved throughout the process who interact with the product, such as distributors, merchants, component suppliers and any processors.

4.4 The supply chain (i.e. distributors, merchants, processors, component manufacturers and suppliers)

NOTE It is an important responsibility for all those who handle or interact with the door product in whatever way along the chain of custody from manufacturing to installation and use to respect, observe and maintain the confirmed specification, as received.

Component changes should not be made without informing the originating specifier and without seeking approval from the responsible manufacturer (see **4.1**). Approvals should be based on the relevant and applicable supporting evidence (see **3.21**).

Selection of individual components, such as individual hardware items, seals and fire-resistant glass should be in accordance with the supporting evidence for the fire door and complete assembly specification. In all cases, changes should be justified with reference to relevant and applicable supporting evidence, as appropriate to the performance of the assembly to be installed.

Component providers should be made aware that their individual item has to work with other parts and components from other sources as a complete assembly and that a direct substitution of one item by another different one might not necessarily reproduce the same level of fire resistance as tested for the original assembly. The manufacturer's original door specification should be maintained as validated by reference to relevant and applicable supporting evidence.

4.5 The door installer

NOTE 1 The installer (including anyone who carries out fitting or assembly work) is primarily responsible for the completion of the fire door with respect to on-site activities or associated off-site preparation activities related to the installation into the prepared opening.

NOTE 2 If the installer does not follow the predefined scope as part of the installation process (for example, the received specification or a provided Field of Application Report) they are making design considerations and might

be defined as a designer under the Construction (Design and Management) Regulations 2015 [11] (see 4.1 and 4.2).

Anyone undertaking the installer role should act in accordance with the received specification and any associated guidance or instructions related to assembly and the installation. They should not make unauthorized changes.

If they have reason to question the received specification or received instructions, they should raise those questions with the person who originally requested for the building work to be carried out and the Principal Contractor.

As they are the last person in the supply chain, installers should check that the assembly as installed is in accordance with a specification that can be referred to, based on applicable supporting evidence for the complete assembly.

NOTE 3 A prime responsibility of the installer is to ensure that the fire door is fitted correctly into the prepared opening as a functioning door, with satisfactory workmanship e.g. without leaf binding, opening force issues, or too forceful closing actions in particular so that the door opens and closes safely.

NOTE 4 The installer is responsible for ensuring that the gap between the door frame and the surrounding structure is adequately sealed against the possibility of fire and smoke penetration around the door into the surrounding structure, using either a solution provided by the door manufacturer as preferred choice, or an appropriate option provided in this British Standard (see 13.4).

The installer should not leave the site without confirming handover as a satisfactorily functioning door.

Upon the completion of installation, the installer should confirm and provide the handover information for retention by the building/project owner, including information that might have already been provided by the manufacturer or door provider (see Clause 14).

If the aperture has not been prepared to the required specification, and there are problems in trying to fit the door and to provide sealing for the frame to surrounding structure gap, the door installer should suspend activities and inform the Principal Contractor of the difficulties.

NOTE 5 It is the responsibility of the Principal Contractor to find a suitable solution in consultation with the walling contractor and the door installer (see 13.4.9).

4.6 The Principal Contractor

Any matters which the door manufacturer, supplier or installer encounter in connection with installing the fire door which are outside their specific responsibilities in connection with providing the door should, in the first instance, be referred to the Principal Contractor to be resolved, or the Principal Designer.

NOTE For example, the dimensions, tolerances or squareness of the prepared door opening.

If partitioning/walling/flooring issues arise when the door comes to be fitted in place, or if there are opening/closing or stability issues in use, the Principal Contractor and/or Principal Designer should be consulted for advice and approval to resolve the issues and find a coordinated way forward (see 13.4.9).

4.7 The partitioning and walling system provider and contractor

The opening where the door is to be installed should be prepared by the partitioning or walling contractor to the specified physical dimensions and tolerances as designed, in accordance with the common level and datum references provided for all on-site contractors and as originally provided to the door manufacturer.

NOTE 1 See BS 8000-8 for guidance on tolerances.

NOTE 2 The partition or wall is to be approved for use by the partitioning or wall system provider and the construction contractor, for example, with the necessary appropriate fire test evidence and with the necessary provisions for physical stability and durability in use to support the fire door being installed. This especially applies concerning provisions to fit the door frame into the wall or partition (in consideration for example of the expected weight of the completed fire door when installed).

Consultations for coordination might be necessary between the wall/partition provider and the door provider to confirm suitability and to resolve practical issues that could arise in practice.

The partitioning or walling system provider should confirm that their system is suitable and validated by fire resistance testing for the installation of fire doors at the required fire resistance performance for the location, and they should provide the necessary fire test evidence for the partition or wall construction if requested.

NOTE 3 *Sealing of any partition or wall cavity against fire and smoke penetration, as part of the wall or partition construction, is an important responsibility of the wall or partition provider and the partitioning system owner.*

It is not an obligation of the door manufacturer to take responsibility for the partitioning system or the partitioning and wall construction. That responsibility rests with the wall or partition system owner, designer and provider, and as constructed and finished with the walling or partitioning contractor. It is expected that part of the design approval of a partitioning or walling construction is confirmation by the responsible provider that it can take openings for fire doors (and any associated glazing).

NOTE 4 *It is the responsibility of the walling contractor to ensure the opening for the fire door has been prepared in accordance with the required specification (see 13.4.9).*

5 Specifying fire doors for the application

NOTE 1 *A specification is the definition of what door product performances and characteristics are required for the situation where the product is to be used. The specification process starts with the designer or specifier acting on behalf of the client (i.e. the building or project owner) expressing what is wanted.*

The specification can be either descriptive of the various properties or prescriptive in terms of a specific source. Further developments in discussion with manufacturers lead to a more detailed definition of what is to be made to satisfy the original requirement specification.

In the specialist and bespoke fire door field, the specification should be tailor-made to fit the application rather than being based on a previous project or a standard format.

Fire door specifications containing the appropriate hardware should evaluate the various functions that fire doors have to fulfil. A competency-based approach should apply the appropriate combined skills, experience, knowledge and know-how (in fire door design and manufacturing) to evaluate and determine the needs and available solutions in what can be a complex multi-dimensional application. The specification should take into account aspects affecting the safety of occupants for the situations where the doors are to be used.

Competency in specifying should include the whole situation that applies in each case, which might require particular technical evaluation of the effective combination of different functions which can possibly impact one on another. For example, the specification should take into account the following aspects:

- a) the primary needs of the application (i.e. basic dimensions and tolerances, the type of door and any screen arrangement associated with the door, including relevant safety aspects in use);

NOTE 2 *Attention is drawn to regulatory requirements for fire door performance, including other performance levels required to comply with regulations, such as sound and impact resistance.*

- b) any specific conditions to comply with the building context, building purpose or building plan, e.g. the escape, compartmentation and smoke control strategies in view of the occupancy and purpose profile of the building occupancy, and safety in use for power operated pedestrian doors (see BS EN 16005);
- c) the wishes of the client and person responsible for the building relating to the situation (e.g. appearance, style, decoration, colour) and any associated specific conditions or attributes for the situation;
- d) any additional special attributes and properties considered necessary or desirable for the application concerning particular applications (e.g. guarding at the meeting styles or at the door to frame edge, special functions such as X-ray or electronic shielding);