

Installing fire resisting timber door assemblies and doorsets

Training Course Handbook



Contents

Section 1. Course Introduction

Section 2. Course Aims, Objectives and Mapping to qualification outcomes

Section 3. An introduction to Fire Doors

Section 4. Building Regulations

Section 5. Fire Door Design and Specification

Section 6. Fire Door Installation

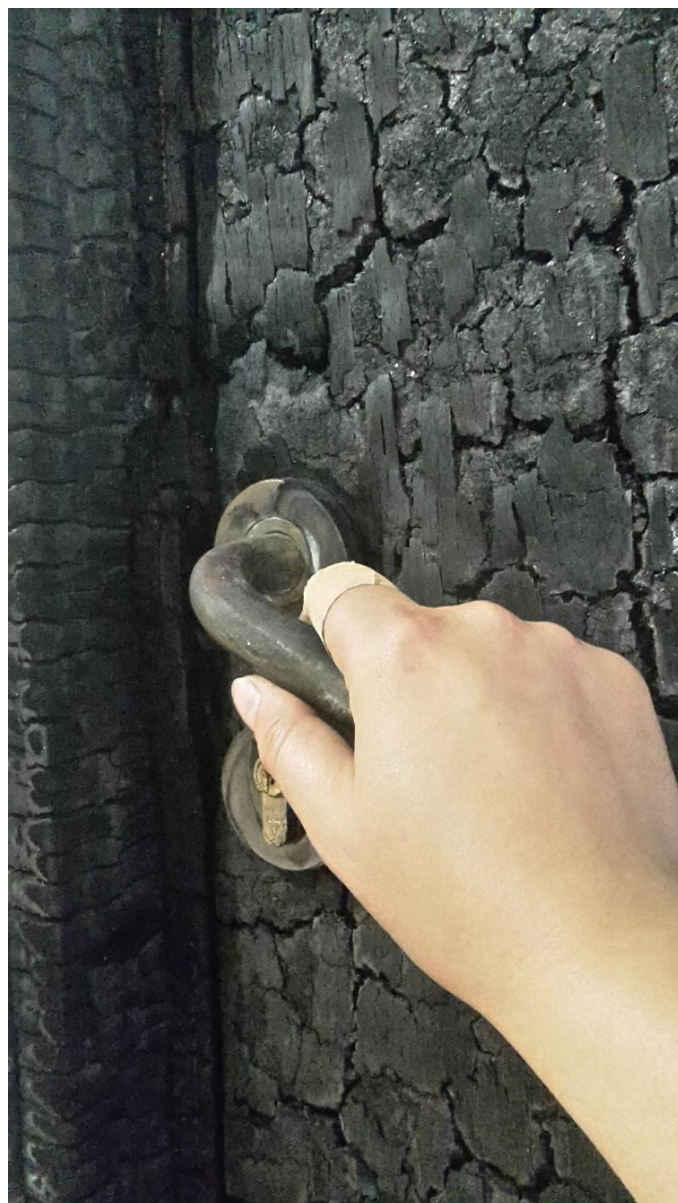
Section 7. Fire Door Inspection and Maintenance

Section 8. Sources of Further Information

Annex A Mapping the course to the National/Scottish Vocational Qualification Unit (N/SVQ)

Annex B Suggested Lesson Plan

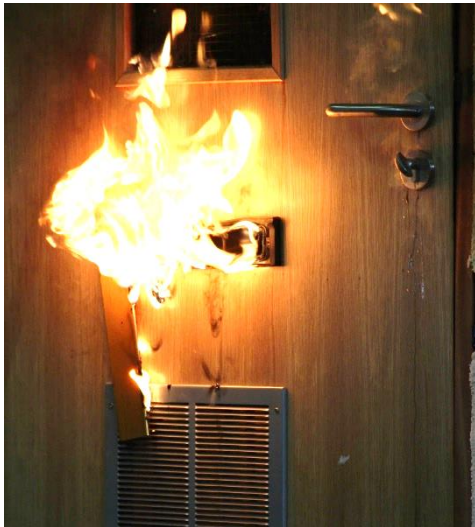
Annex C N/SVQ Achievement Process



Fire doors and doorsets are life safety products. They only work if they are correctly manufactured, the appropriate compatible components are used, they are correctly installed and regularly inspected and maintained.

Getting it wrong can cost lives.

Section 1. Introduction to the course



Installation of fire doors is as life critical as the product specification itself and should only be carried out by someone who is competent, has been specifically trained to install fire doors and understands their responsibilities in getting it right.

Fire doors that are incorrectly installed and fitted with incompatible components invalidate certification and will not provide adequate protection from fire and smoke for the occupants or the building.

This training course has been developed to provide the learner with a step by step process for the installation of fire doors.

The course has been structured to allow the candidate to gain the necessary practical skills and benchmark knowledge required to ensure that all specification and process considerations have been taken into account, and product certification is maintained every step of the way.

The training course has been designed to support existing holders of Wood Occupations National and Scottish Vocational Qualifications (NVQ/SVQ) to achieve and add **Unit 358 - Install fire resisting timber door assemblies and doorsets**, to their existing suite of competence outcome units achieved through having previously completed one of the following occupational qualification pathways:

- Site Carpentry
- Shopfitting (Site)

Section 2. Course Aims and Objectives

The **aim** of this course is to give all candidates the appropriate skills required to install fire resisting timber door assemblies and doorsets, and to gain the necessary underpinning knowledge and understanding to support those skill requirements.

All candidates will be given the opportunity to utilise this knowledge and practice their newly acquired skills in a controlled environment under the supervision of the qualified course deliverer.

By the end of this course the candidate will have met the following **objectives**:

Gained an understanding of:

- third party certification of fire doors and component compatibility
- fire resisting timber door assemblies and doorsets and their purpose
- the relevant legislation and guidance in relation to the installation of fire doors
- the design and specification requirements and considerations for fire doors assemblies and fire doorsets
- the pre-installation planning requirements
- how to install fire resisting timber door assemblies and doorsets
- how to check the installation and product to ensure certification and performance has been maintained

Gained the required skills to:

- install fire resisting timber door assemblies and doorsets (single and double door configurations) in accordance with fire door manufacturer and building designer recommendations.

Mapping the Course Content to N/SVQ Outcomes

The training course content has been mapped to the learning outcomes and their associated assessment criteria for **Unit 358 - Install fire resisting timber door assemblies and doorsets** and can be found at Annex A of this course handbook.

Section 3. An Introduction to Fire Doors

Learning Resource: BWF-Certifire Fire Door Safety Week Film

Watch it here: https://www.youtube.com/watch?v=C_GCDNGwTtw



Managing risk

A minor mistake in the fitting process can have dangerous consequences. If you install a certificated fire door incorrectly there are 4 main risks:

1. The fire door will not perform in the event of a fire, causing fire and smoke to spread through the building, creating danger to the occupants and firefighters responding in an emergency
2. The building is not properly protected and property insurances may be invalidated
3. If you are legally responsible for ensuring that fire doors are supplied and installed correctly you are liable and can be prosecuted if it is proved that they are incorrect. This prosecution can result in a custodial sentence or fine
4. The certification of the fire door is INVALIDATED and you cannot guarantee that the product will perform in a fire. You will be unable to provide proof of third party certification to your customer

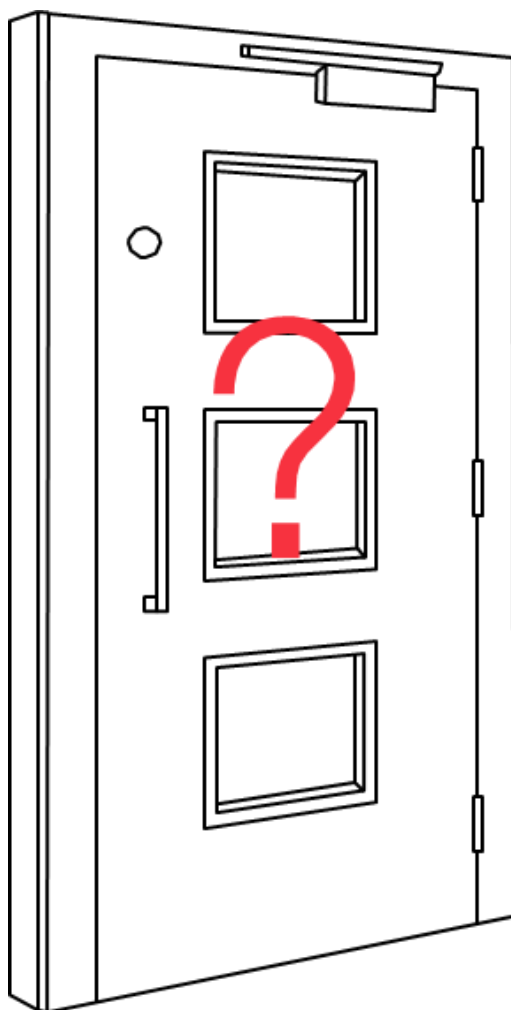


You should only use product **systems** that are certificated by an independent third party and have traceability to the original manufacturer and fire certificate. All fire doors supplied through the BWF-Certifire scheme are provided with installation instructions that are specific to the product. Installation methods and materials can change depending on a number of factors, including product type and installation environment.

Let's get started - What is a Fire Door?

A fire door is a vital safety device engineered to save lives and property. The correct specification, supply, fitting and maintenance are critical and the responsibility of each and every person in the process. It's only when a fire breaks out that the consequences of poorly manufactured or fitted fire doors are known.

You should only ever install fire door assemblies or fire doorsets that are fully third party certificated, have product identification and traceability, and are fitted with all their compatible components (all components listed as compatible on the fire door certificate).



Fire door should be third party certificated by an independent test organisation in accordance to British or European Standards, and traceable back to the original manufacturer and fire door certificate.

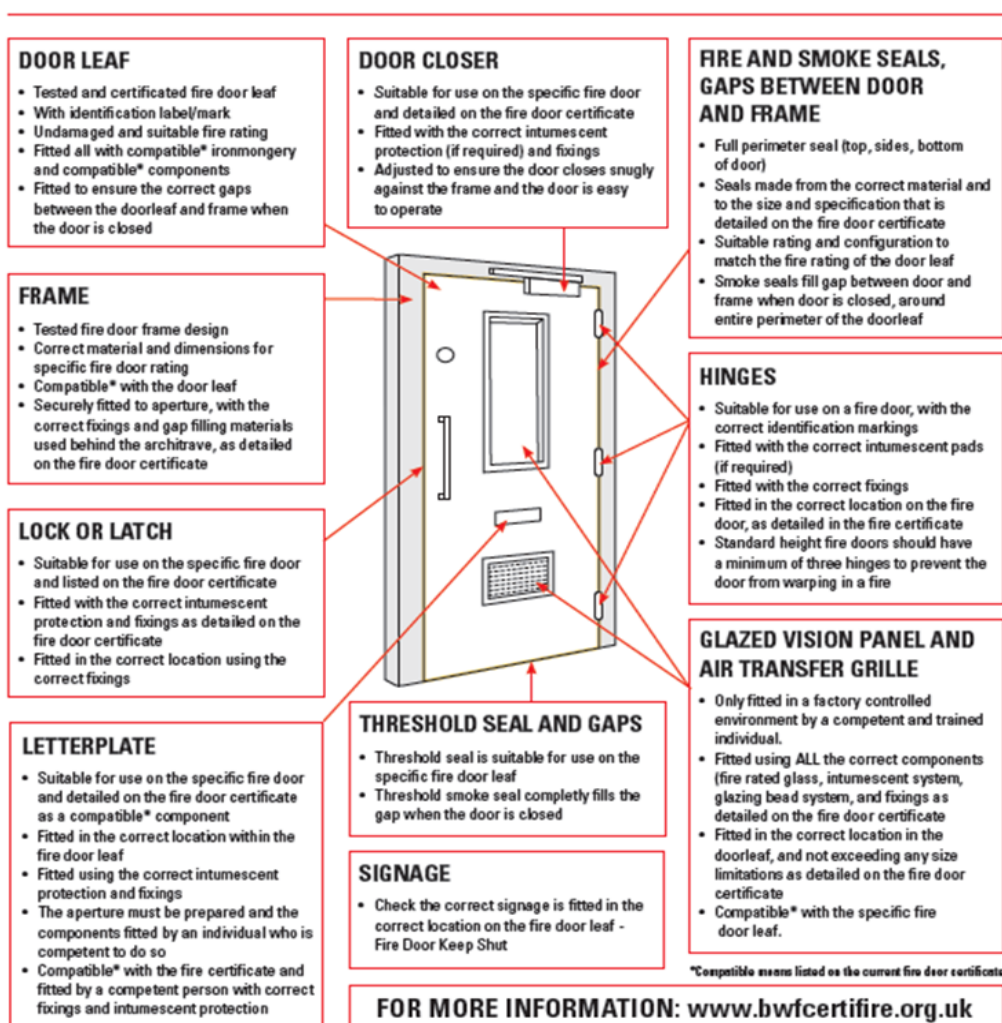
This is the best way to prove to your customer that you have supplied a fire door that is fit for purpose and confirmed that the certification is relevant to the supplied product and has been done by an independent accredited third party.

Third party certificated fire doors - A COMPATIBLE system of components

A fire door assembly or fire doorset is a **SYSTEM** of components that all work hand in hand to protect the occupants and building in a fire.

If you use incompatible components (those not listed on the certificate), you invalidate certification, have no guarantee that the product will work, and will not be able to provide proof of performance to your clients, building control or enforcement authorities.

THE ANATOMY OF A FIRE DOOR



But a **SAFE** fire door is also about:

INSTALLATION

Door fitted by a competent person, in accordance with manufacturer's fitting instructions. Gap between frame and wall suitably filled with compatible* fire rated materials.

INSPECTION

Fire Doors need to be regularly inspected as part of the building fire risk assessment. Regular inspection identifies faults before they impact performance of the door.

MAINTENANCE

Regular maintenance of fire doors with compatible products helps to keep them fit for purpose and in full working order. **SAFE**.

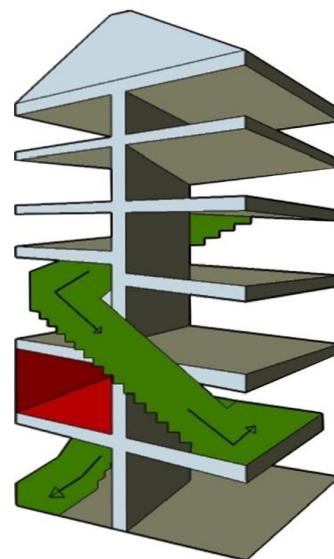


What do Fire Doors do?

Fire doors act as a barrier to a fire and cold smoke (where smoke seals are fitted), cutting off and protecting parts of a building.

To summarise they:

- Reduce the damage caused by a fire and smoke by providing 'COMPARTMENTATION' throughout the building
- Protect the route of evacuation (The 'Means of Escape' route)
- Provide the emergency services with a protected route to access the building



- Protect the users of the building who may have difficulty evacuating the building.
Some buildings have a 'STAY PUT' fire plan. This means that due to the high volume of occupants, or the complex design of the building evacuation would be difficult. Fire doors allow the occupants to seek refuge until the fire can be brought under control by the emergency services.

Fire doors are a vital part of the building fabric, dividing the building into individual fire compartments, constructed and lined with suitable fire resisting materials to reduce the spread of fire and smoke.

Passive Fire Protection

Fire door assemblies and fire doorsets are part of the Passive Fire Protection system of a building.

Passive fire protection is the term given to parts of the building that provide fire and smoke compartmentation. When constructing a new building or refurbishing an existing building, it is essential to maintain the integrity of compartmentation using passive fire protection products as part of the fabric of the building.

These products will often not be noticed by the occupants as part of the systems put in place for their protection. (Examples of other passive fire protection includes the materials used within the construction of walls, floors and ceilings, the fire stopping of services, like electrical, gas and water throughout the building, and automatic dampeners within ducting systems etc).

The aim of passive fire protection products is to restrict the spread of fire and/or smoke by:

- Containing the fire in one area or compartment.
- Compartmentalising the fire.
- Give people in other areas of the building time to escape or seek refuge.
- Restrict damage to the building.

To achieve an effective fire protection system, passive fire protection products will be included for use in the walls, floors, ceilings and structure of the building. This will help maintain the structural integrity of the building in the event of a fire.

The Role of the Fire Door as Part of the Passive Fire Protection System

The fire door has a critical role to play in the passive fire protection system of a building. When looking at the main areas when trying to contain a fire, the doorway can sometimes be the weak point.

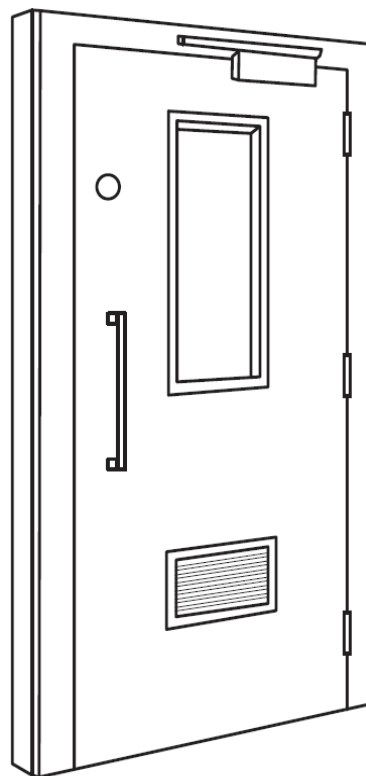
If a certified fire door with compatible fire rated components is correctly fitted, the barrier can be maintained within the compartment fire wall.

What Makes a Fire Door Work?

In the event of a fire the following elements are **CRITICAL** to making sure the fire door assembly or doorset performs in a fire.

It is a system of components that work hand in hand to maintain integrity in a fire.

- ✓ Door leaf
- ✓ Frame/linings
- ✓ Intumescent seals
- ✓ Smoke seals*
- ✓ Latch or lock
- ✓ Hinges
- ✓ Door closer
- ✓ Signage*
- ✓ Other ironmongery*
- ✓ Fire door glazing
- ✓ Frame/wall sealing
- ✓ Letterplates
- ✓ Threshold seals*
- ✓ Air transfer grille*



(* if required)

**Get just one thing WRONG = High Chance of Failure
= Loss of Life or Property**

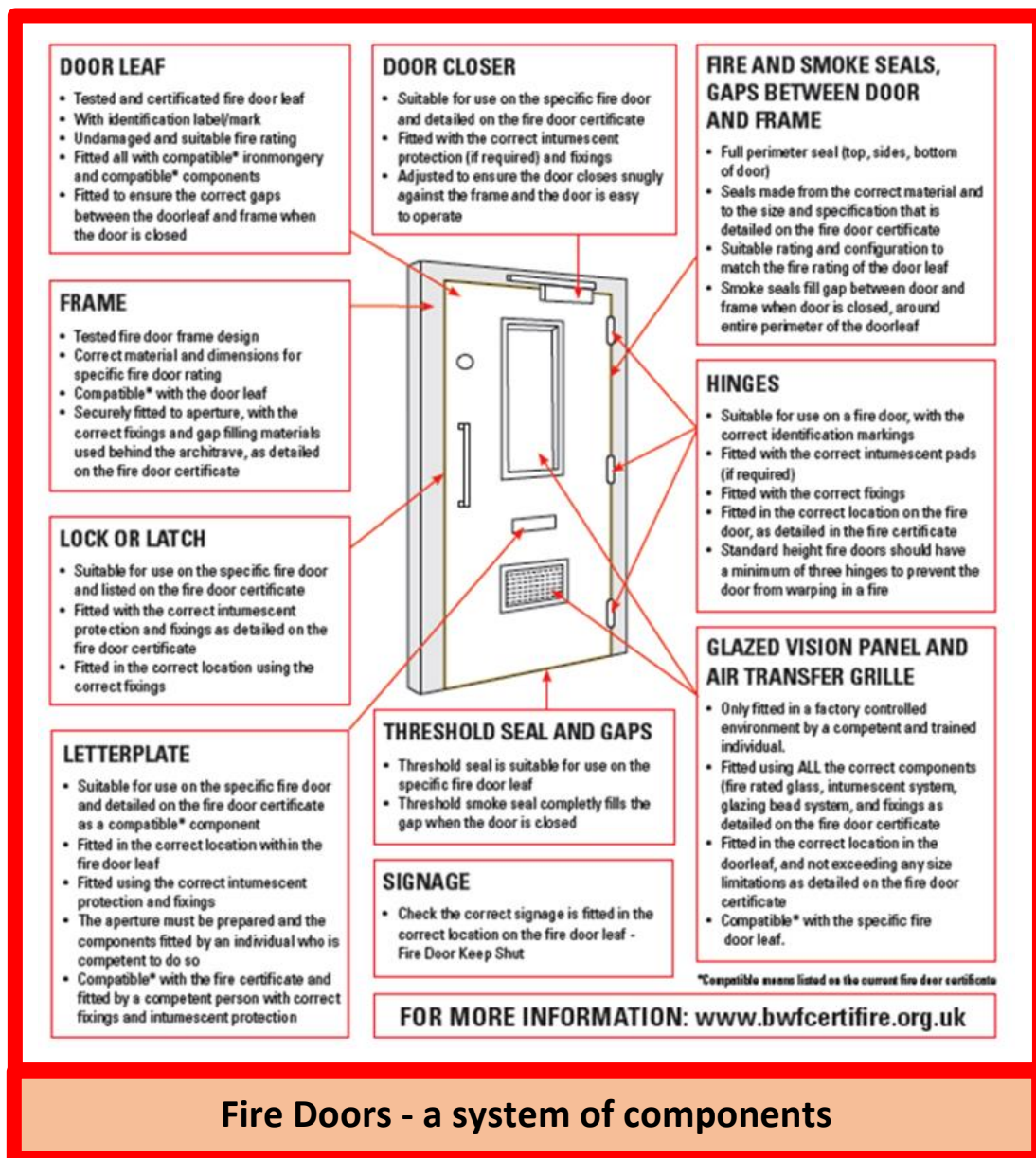
Component Definitions

**ALWAYS CHECK THE FIRE DOOR CERTIFICATE OR
MANUFACTURERS INSTALLATION INSTRUCTIONS TO ENSURE
COMPATIBLE PRODUCT IS USED**

Using incorrect components INVALIDATES certification

Door Leaf	The fire door leaf is the main component of the doorset or door assembly and is usually manufactured to a range of standard sizes and door styles. Fire door assembly or fire doorset performance depends on the door leaf manufacturer's certification.
Frame/Lining or Casing	The frame design, size, fixings and material are critical to the fire performance and fire rating.
Intumescent Seals	Intumescent seals are located in the door edge or frame. These seals expand in the event of a fire and seal the gap between door and frame, stopping the passage of fire. The gap between the frame is usually between 3-4 mm (dependant on the gap allowed in the manufacturer's instructions). Excessive gaps may prevent intumescent seals performing correctly in the event of a fire.
Smoke Seals*	Combined with, or separate from intumescent seals and located in the entire perimeter of the frame or door edge. These wipe or compression seals stop the flow of smoke. Remember: Smoke Kills.
Fire door glazing*	Some fire doors have vision panels fitted in them. Special fire tested glass and glazing systems must be used. This operation should only be undertaken by a trained and competent individual, with a good working knowledge of the specific materials and glazing systems required. This work can only be carried out by someone who holds certification to perform this task, otherwise certification is invalidated.
Threshold Seals	Threshold seals are located on the bottom of the door or threshold, they seal the gap under the door to prevent the flow of smoke.
Signage*	Correct fire door signage should be fitted on all non-domestic fire doors at eye level.
Hinges	A minimum of 3 fire rated hinges must be used with correct intumescent pads, location and fixings. In some instances, additional hinges will be required for particularly large or wide fire doors, and you should always consult the manufacturer's instructions to ensure compatible and correct product is used.
Door closer*	Some fire doors are fitted with closers to ensure the fire door always returns to its fully closed position and is held in the closed position when not in use.
Latch or lock	The latch or lock engages the door leaf securely to the frame when the door is in the closed position. It is critical in securing the door in the event of a fire and preventing warping of the door.
Letterplate	Letterplates fitted into fire doors can be particularly vulnerable in a fire. Only special fire resisting letterplates that are tested and listed as compatible on the fire door certificate can be used. They must be fitted with the correct internal intumescent sleeve, using the correct fixings and in the correct location within the doorleaf.
Air Transfer Grilles (ATG)*	Fire rated air transfer grilles are fitted into some doors to keep fresh air circulating within a building, combining air movement with fire protection. In everyday use, air can pass freely through the grilles to allow good ventilation. In

	a fire, the intumescent expands, fusing the grille into a solid mass that stops fire spreading. Some Fire rated ATG combine fire with cold smoke protection, using an electro mechanical shutter plate system that closes on fire alarm activation, preventing the spread of deadly smoke and fumes. Fire only rated ATG should not be used on doors designated FD30S and FD60S; in these doors, the combined fire and cold smoke dampers must be used.
(*if required)	ALL components must be RIGHT and listed on the Door Fire Certificate to ensure performance.

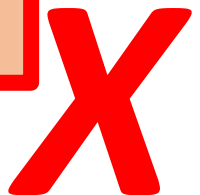


Maintaining certification of a fire door assembly or fire doorset

Third party certification of fire door assemblies or doorsets means that:

- ✓ The product is regularly tested to British or European standards to prove performance. Testing is carried out by an independent UKAS accredited test facility.
- ✓ The manufacturing facilities where the product is made have a strict Factory Production Control (FPC) system in place in order to ensure that every product is consistently manufactured to the correct specification. This process is audited by an independent UKAS accredited organisation that will issue a certificate to the manufacturer to confirm certification and the scope of product covered.
- ✓ The fire door certificate will detail all of the compatible components that are allowed to be used with the door, as well as supporting information about installation, door configuration and limitations of the product.
- ✓ The door should have traceability either by label or plug, or by fire door register, relating to the specific certification of the specific product.

USING INCOMPATIBLE PRODUCTS INVALIDATES CERTIFICATION



Third party certification is broken by:

- ☒ Using incompatible products that are not listed on the fire door certificate
- ☒ Fitting components in the wrong position or removing too much material from the door leaf or frame
- ☒ Exceeding any of the other limitations on the fire door certificate including resizing, door configuration or opening directions.
- ☒ Using the incorrect fixings to secure ironmongery or install the product
- ☒ By glazing a door – doors can only be glazed by an individual or organisation that holds certification to perform this task.
- ☒ By cutting other apertures in the door leaf to fit components like air transfer grilles, letterplates or eye viewers – this work can only be glazed by an individual or organisation that holds certification to perform this task.
- ☒ Installing the door incorrectly or not fire stopping the installation with compatible materials.

If you break certification by using incompatible products, or handling and installation the product incorrectly, you cannot prove performance of the product to your customer, building control or the enforcement authorities.



Fire door assemblies and fire doorsets

Fire doors can be supplied in 2 different ways, as a **fire doorset** or a **fire door assembly**.

Fire Doorset

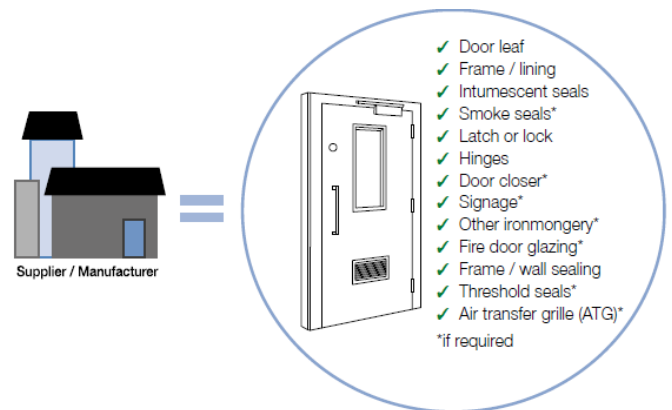
‘...complete unit consisting of a door frame and a door leaf or leaves, supplied with all essential parts from a single source’. BS EN 12519

This means that it is supplied as a complete unit from one supplier, therefore:

- Fully fitted up and finished, direct from the manufacturer
- Fitted with all compatible components and glazing
- Pre-assembled in the factory

This guarantees that the entire doorset and components, will match the fire tested, original design and fire certificate.

Sometimes a doorset products are disassembled by the manufacturer and supplied at different times to site. This is known as a doorkit.



ALL WORK AND FITTING OF
COMPONENTS UNDERTAKEN BY
ONE MANUFACTURER BEFORE
DELIVERY TO SITE

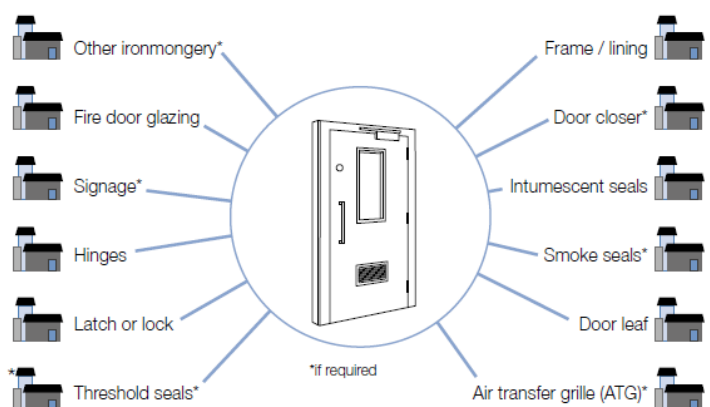
Fire Door Assembly

‘...complete assembly as installed, including door frame and one or more leaves, together with its essential hardware supplied from ‘separate sources’. BS EN 12519

This means that the components can be sourced from many different manufacturers or suppliers.

To make sure that the door assembly works, it must be:

- Altered only as defined on the door leaf Fire Certificate
- Fitted with compatible components as per installation instructions and fire certificate
- The compatible components must be listed on the door leaf Fire Certificate.



ALL COMPONENTS ARE SOURCED
FROM DIFFERENT **MANY DIFFERENT**
SUPPLIERS

ASSEMBLY WORK IS COMMONLY
UNDERTAKEN ON SITE

Fire Door Configuration

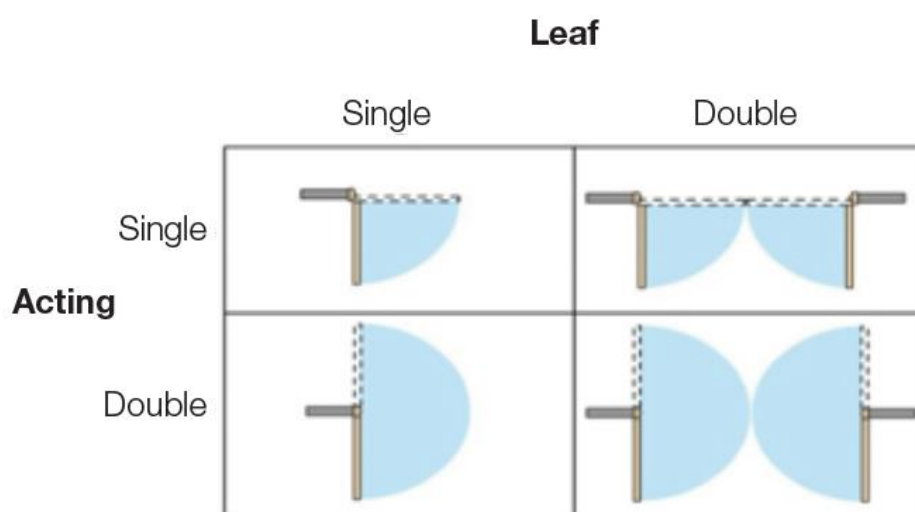
The term fire door configuration refers to whether the door is single or double opening.

The fire door certificate and the manufacturer's instructions will confirm which configurations the particular chosen fire door can be fitted in.

Not all fire doors are certificated to be fitted in a 'double configuration' or be installed with 'double acting' ironmongery, and checks should always be carried out before fitting.

In addition, consideration should be given to the associated seals and ironmongery used, as this will also differ in specification and location depending on door configuration.

The certificate will also detail whether the chosen fire door is suitable to be fitted to open in only one direction, or both directions. (Single or double acting).



Configuration describes whether a door is single or double leaf and what direction the door opens.



Always check the fire certificate or contact the door manufacturer to make sure the correct specification is used in the correct configuration.

Not all doors can be fitted in a double configuration because they are not tested or certificated for this use. Always check the limitations of the fire door certificate.

Fire Door Rating

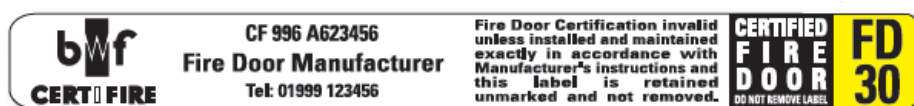
Fire door rating is the number of minutes that the door can resist fire in a furnace test.

Fire doors in the UK are tested to either BS 476-22 or EN 1634-1.

British Standard and European standard ratings are given below, with the length of time that the fire door has been tested to and proved to resist fire.

British Standard: Minimum fire resistance (integrity) rating	European Standard: Minimum fire resistance (integrity) rating	Number of minutes that the door can resist fire
FD 30	E 30	30 minutes
FD 60	E 60	60 minutes
FD 90	E 90	90 minutes
FD 120	E 120	120 minutes

All BWF-Certifire door and frame components will indicate their fire rating on the label/s found at the top edge of the door.



Fire and smoke control doors

Sometimes fire doors are required to be both fire and smoke control doors and these products will be tested to either BS 476-31.1 or EN 1634-3.

This means there will be either a combined fire and smoke seal or a plain intumescent seal and a separate smoke seals in either the entire perimeter of the door and/or in the frame.

If an air transfer grille (ATG) is fitted to the door leaf, it will contain an automatic smoke damper that will close if a fire breaks out.

The 'S' suffix (e.g. FD30S) denotes that the door is both a fire and smoke-controlled door.

British Standard: Minimum fire resistance (integrity) rating	European Standard: Minimum fire resistance (integrity) rating	Number of minutes that the door can resist fire and smoke
FD 30S	E 30S	30 minutes
FD 60S	E 60S	60 minutes
FD 90S	E 90S	90 minutes
FD 120S	E 120S	120 minutes

Perimeter gaps

The gap around the entire perimeter between the door and the frame is critical to both fire and smoke performance. Excessive gaps will prevent the ironmongery and seals working correctly.

Always check the specific required gap (top, bottom and edges) between the fire door and frame and ensure that you maintain these gaps throughout the fitting process. The manufactured

instructions the fire door certificate will provide information about the correct gaps and tolerances required to maintain the certification performance of the door.

The gap between the frame is critical to delay the spread of cold smoke around a building and you should ensure that the correct gap is maintained in relation to the compatible smoke seals to prevent non-performance if the gap is too big, and damage to the cold smoke seals if the gap is too small. The smoke seals must fill the perimeter gap when the door is closed.

Excessive gaps will prevent smoke seals performing correctly in the event of a fire and invalidate certification.

Fitting doors into existing frames

Fitting new fire doors into existing frames is risky because the existing frame may not be fit for purpose or compatible with the certification of the new fire door leaf.

If you are fitting new fire doors and components into existing frames there are a number of checks that should be made on the frame before taking the decision to only upgrade the doorleaf. If it is not compatible then certification is invalidated.

The existing frame must be checked in accordance to the frame specification detailed on the fire door certificate (CF or CAF) to ensure that it is compatible.

Specification to check includes:

- That the correct installation including adequate fire stopping is in place in the gap between the existing frame and the wall (behind the architrave).
- The material (softwood or hardwood), species, density and the moisture content are listed as compatible on the fire door certificate (CF or CAF).
- The overall size and profile is listed as compatible on the fire door certificate (CF or CAF).
- The overall size and profile of any doorstop is listed as compatible on the fire door certificate (CF or CAF).
- That material removed from the doorframe for previous ironmongery will not affect the certification of the new fire door leaf or ironmongery.
- You should also make checks to ensure compatibility and location of any intumescent or cold smoke seals that may be located in the frame. Machining the groove to house an intumescent seal in an existing frame is not feasible so you should use a certificated doorleaf that contains the compatible seals in the edge of the doorleaf rather than the frame.



Section 4. Fire Door Regulations

Building Regulations

The Building Regulations provide guidance as to the **minimum** building standards to be achieved. They reference the relevant British and European Standards defining the test requirements and performance of the fire door assembly or fire doorset.

A building designer or owner may choose to fit fire doors in other locations than specified in the regulations to further protect life and property and reduce risk.

There are regional variations of the building regulations.

- English and Welsh Building Regulations = Approved Documents
- Building Regulations in Scotland = Technical Handbooks
- Northern Ireland = Technical Booklets

Regulation 38 and the Handover of Information

Regulation 38 applies in England and Wales and states that fire safety information must be handed to 'responsible person' at the completion of a project, or when the building or extension is first occupied. It places the responsibility of fire safety onto the '**responsible person**'. In order for the **responsible person** to carry out future inspections and maintenance of fire doors, it is important that the correct information such as installation and maintenance instructions and traceability to the fire certificate is handed to them.

Regulation 38 Checklist

- ✓ Location and rating of every fire door in the building
- ✓ The fire door certificate – which **MUST** be relevant to the installed fire door*
- ✓ The type of seal (intumescent/smoke seal/acoustic) fitted to the door or frame
- ✓ Details of the door frame (hardwood, softwood, MDF etc.) and how that relates to the fire door certificate
- ✓ Details of the door leaf design and whether it contains specialist vision panels or ironmongery, such as letterplates or air transfer grilles, and how that relates to the fire door
- ✓ Details of hinges, closers and other essential building hardware (CE marked) and how that relates to the fire door certificate
- ✓ Maintenance information for each component, including the door leaf
- ✓ Frequency of inspection and maintenance, depending on expected usage of the door



Building Regulations relating to fire safety

The building regulations are accompanied by a series of ‘Approved Documents’ or ‘Technical handbooks’. These documents give guidance about how to fulfil the Building Regulation.

Fire Safety	England and Wales	Scotland	Northern Ireland
	Approved Document B	Technical Handbook 2	Technical Booklet E

Other Building Regulations

There are a number of other Building Regulations (and associated approved document or technical handbooks) that impact on the design and installation of fire doors listed in the table below. All documents are available to download from the relevant government website and should be accessed on a regular basis to ensure you are familiar with the latest edition.

Performance	Notes	Regulatory Parts		
		England & Wales Approved Documents	Scotland Sections	Northern Ireland Technical Booklets
Fire Safety	- Where a fire door is required - The fire resistance period expected - Specific requirements e.g. smoke seals & signage	B	2	E
Sound	Minimum sound resistance performance of the door	E	5	G
Ventilation	Minimum air transfer gap required under the door	F	3	K
Thermal	Minimum thermal performance of the door if required	L	6	F
Accessibility	Access to buildings for disabled people, including door width, hardware location, opening forces, provision of vision panels and light reflection values required.	M	3	R
Safety Glass	Where safety glass is required.	N	4	V
Materials and workmanship	Materials and workmanship Regulation 7	7	0.8	B

The full Building Regulations guidance are available to download from:

England and Wales: <https://www.gov.uk/government/collections/approved-documents>

Scotland: www.gov.scot/Topics/Built-Environment/Building/Buildingstandards/publications/pubtech

Northern Ireland: www.dfpni.gov.uk/index/buildings-energy-efficiencybuildings/building-regulations/br-technical-booklets.htm

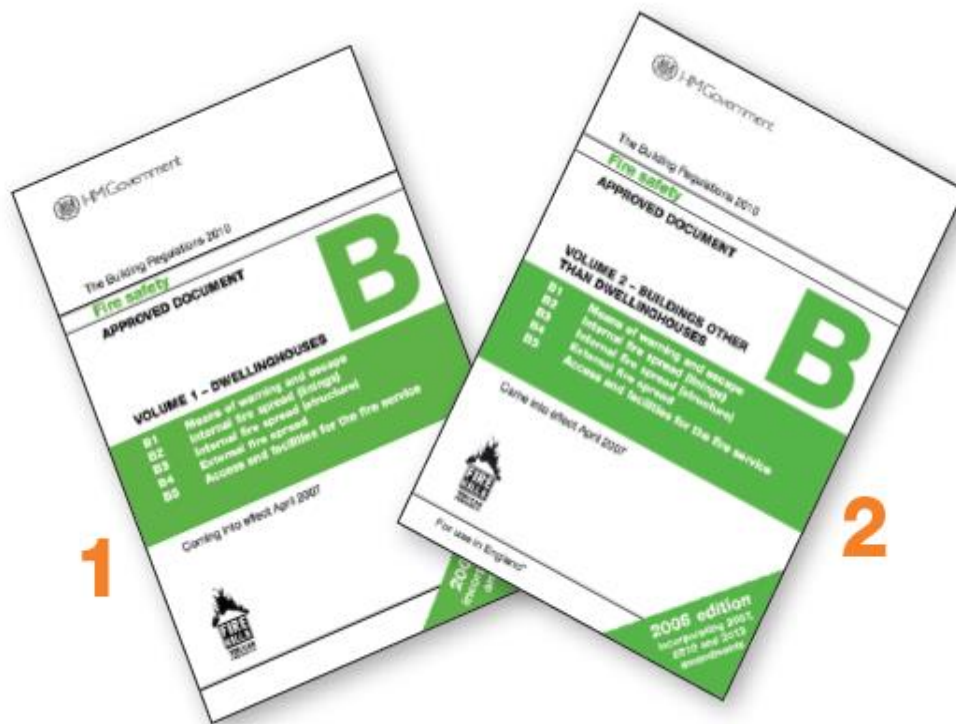
Approved Document B – Fire Safety

The regulation and guidance affecting fire doors in England and Wales is contained in Approved Document B, Volumes 1 and 2. These specifically cover fire safety guidance for buildings in which fire doors play a critical role in fire safety.

Part B is split into 2 sections:

Volume 1: Dwellinghouses

Volume 2: Buildings other than Dwellinghouses



Where should fire doors be fitted?

Fire Doors are required in almost every building built in the UK according to the relevant national fire safety regulations. Requirement, rating and location of fire doors is different for different types of buildings and is based on:

- Guidance in the relevant approved documents or technical handbooks
- The overall fire risk assessment* and specific risk profile and layout of the type of building, and the subsequent fire plan.

*where applicable.

It should be noted that beyond regulation, customer or project specification also drives requirement and insurance companies sometimes place specific fire door requirements on projects.

Regulatory Reform (Fire Safety) Order (RRO)

The Regulatory Reform (Fire Safety) Order 2005 or FSO, came into force in 2006 in England and Wales. In Scotland a similar act called the Fire (Safety) Act was published in 2005. In Northern Ireland the Fire Safety Regulations were introduced in 2010.

The responsibility for fire risk assessment in all non-domestic buildings, including the common parts of flats and houses of multiple occupation, falls to the so-called 'responsible person'. The responsible person must carry out a fire safety risk assessment and implement and maintain a fire management plan.



The law applies to you if you are:

- Responsible for business premises
- An employer or self-employed with business premises
- Responsible for a part of a dwelling where that part is solely used for business purposes
- A charity or voluntary organisation
- A contractor with a degree of control over any premises
- Providing accommodation for paying guests



Failure to comply with the RRO can place property and lives at risk and is likely to result in criminal prosecution.

Construction (Design and Management) Regulations

The revised CDM regulations (2015) identifies responsibilities of designers and suppliers in regard to the safety of construction products that are supplied and installed. Construction companies will need to provide information, instruction, training and supervision, with workers having their training needs assessed against the needs of the job and employers to meet the gap in skills knowledge through appropriate training.

Crucially if you supply **fire door assemblies or doorsets** the CDM regulations may make it your responsibility to provide safety information regarding the use of a product throughout its installation and service life. This would include installing a product correctly and providing installation and maintenance instructions to the building manager or customer in order for them to be able to inspect and maintain the fire door product safely.

*The designer's role when preparing or modifying designs is to **eliminate, reduce or control foreseeable risks** that may happen during construction or maintenance and use of a building **after it's been built**. The designer also provides information to other members of the project team to help them fulfil their duties.*

CE Marking

CE marking is required under the Construction Products Regulation (CPR) which applies to construction products that are made available on the market within Europe.

The CE label and Declaration of Performance (DoP) state product performance in the following fields (where applicable).

- Mechanical Stability
- Fire Safety
- Health and Environmental Safety
- Sound Protection
- Energy Efficiency

CE marking of Fire doorsets: It is likely to be possible to CE mark a fire doorset from September 2016* with a three-year transition period. CE marking does not apply to door assemblies or door leaves. In isolation CE marking does not offer the full advantages of certification, particularly in terms of traceability, information to support maintenance and interchangeability of components.

* Subject to final confirmation from the European Commission.

CE marking of fire door hinges: Must be tested to BS EN 1935, should be used on fire or smoke doors and on all escape routes.

CE marking of door closing devices: Overhead and electro-magnetic closing devices and door co-ordinators tested to BS EN 1154/55/58 has been required since 2004.

CE marking of Panic and escape hardware: Panic and emergency exit devices intended for use on escape route doors can be CE marked and will be tested to either EN 1125 or EN 179.

Section 5. Fire Door Design and Specification

Sticking to the specification – its critical



Building contractors are pressured to be on time and on budget. Cheaper untested products may save the client money, but if a fire breaks out, it will cost far more in lives and property.

It's straightforward:

'Stay safe, Save lives and Stick to the Specification'

By compromising the original specification, a fire door installation risks catastrophic failure in the event of a fire.

There are four major areas where contractors and their clients are at risk:

- Non-compliance with Building Regulations
- Non-compliance with the Regulatory Reform Order
- Lack of adequate insurance protection
- Insufficient protection for life or property

Design and Specification

The early stage of the design and specification of fire doors and doorsets can present a challenge to avoid costly mistakes. Major insurance companies typically insist on the use of third-party accredited passive and active fire protection products.

The RISC Authority: BDM1-Fire protection of buildings, lays down essential principles (Essential principles 5), states: "As a minimum, all fire protection products shall be third party certified to an appropriate product - or performance-based standard".

Many people **CLAIM** to sell fire doors but many of them cannot provide acceptable evidence to back up their claims.

Specifying Passive Fire Products for a Building

In the initial design stages of a building, the person who will be specifying the standards of materials to be used, could look at the fire safety of the building as a whole and to make the decisions on what fire products are required to ensure the safety of the occupants in the event of a fire. It is important that areas where a fire door will be required are identified as well as the fire rating requirements of each individual door.

It is important to remember that when specifying fire doors, the product cost will always need to be a consideration, but the decision on the quality of a fire door must be made with the safety of the occupant in mind. If the specification of the quality of the fire door is left to someone further down the process route, then the decision may be made on cost alone and not on the appropriate quality or rating of the fire door required.

Fire door design – Choosing the Door Leaf

Due to the increase in the demand for fire doors to provide both aesthetic and functionality, as well as the requirement to meet building regulations, there is now a wide range of fire door leaf designs available to meet the demands of architects and designers, from heritage buildings to new and innovative designs projects.



The designs available include numerous surface finishes, different glazing options, different sizes and variations of ironmongery suite to suit the requirements of the specific customer or environment.

But different fire door designs do have limitations, such as size, configuration or glazing aperture and ironmongery specification. You must always work within these limitations, otherwise performance and certification can be invalidated.

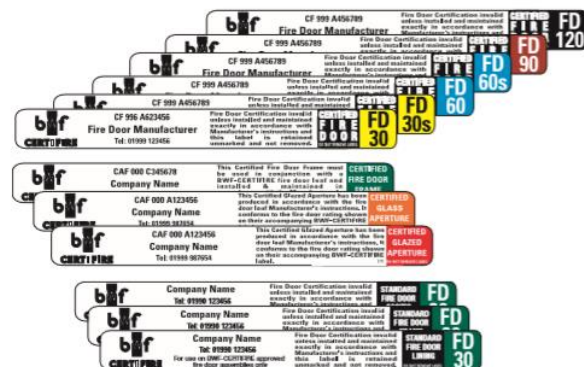
You must always use a fire door that is third party certificated and has traceability back to the original manufacturer and fire door certification.

Not all fire door leaves are suitable to be fitted in every situation or configuration because they are not certificated for this use. Always check the limitations detailed within the manufacturer's instructions and the fire door certificate.

Traceability of the fire door leaf and associated components is critically important. Fire Doors that are manufactured by members of third party certification schemes will have a label or plug showing that the product is certificated and the manufacturer is traceable.

On each individual fire door, there should be a label that will have information printed on it specific to that door. The information will contain the manufacture's name and phone number, and where applicable the certificate number, a unique serial number and the rating of the door. It is important to remember that this label should never be removed, as it is there to provide an audit trail if anything goes wrong with the door or doorset.

Other labels associated with the BWF-Certifire Scheme:



Fire doors manufactured by members of the Q-Mark scheme: These doors and / or frames have coloured plugs fitted to either the hinge side door edge and / or frame edge. Different colours denote the type of the product and the number is the manufacturer identification. More information is available here: <https://www.exovabmtrada.com/en-gb/certification/product-certification/q-mark-product-certification/fire-door-manufacture-scheme>

The number printed in the centre of the tree for all colours is the identification number for a Q-Mark certified fire door manufacturing company or Q-Mark certified installation company. This maintains traceability for which company was responsible for completing each part of the doorset manufacture, assembly and installation process.

24

Glazed apertures and other apertures

You must always purchase fire doors from a third party certificated manufacturer / supplier with the glazed apertures already fully installed. Any other apertures must be pre-prepared by the manufacturer to the correct specification, with the compatible system of materials, and in the correct location in accordance the specific certification of the door.

Glazing fire doors is a highly skilled operation that involves a number of different components to achieve performance in a fire. One small mistake can severely impact performance.

Cutting apertures and glazing on site breaks certification and risks lives.

When selecting a fire door to fit an opening, you will need to consider the requirement to see what is happening on the other side of the fire door and this may mean that there will be a need for the inclusion of a glazed aperture in the door.

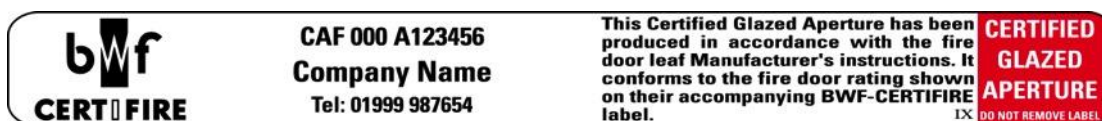
Glazed apertures are often required in fire doors to fulfil the requirements of Part M of the building Regulations and improve the visibility around the building.

Third party certificated manufactures provide a wide range of compatible fire resistant glazed apertures in a wide range of finishes to suit any client specification.

A third party certificated door that has a glazed aperture in in will carry detail on the fire door labels or plugs that shows the product has been glazed by a manufacturer who is certificated to do so. (If the glazing has been undertaken by a manufacturer who is licensed to this processing operation, an additional label will be added to the door. This is proof on site that the door has been glazed in accordance to certification and within the factory production-controlled environment of the processor.



Reference the BWF-Certifire and Q-Mark plug menus at the back of this document.



Other apertures cut into a fire door leaf



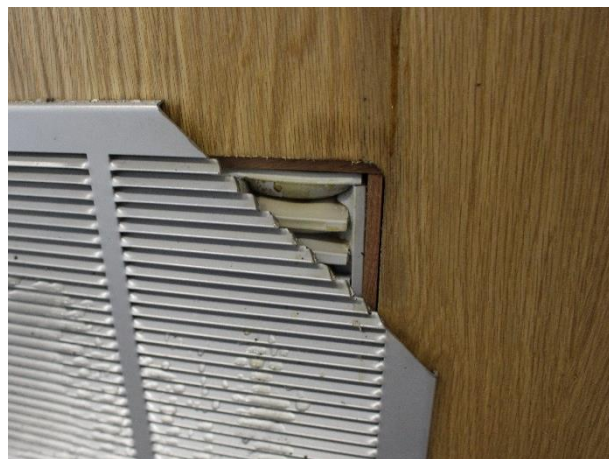
There are other reasons for apertures to be cut into a fire door such as including letter plates, air transfer grilles and spy holes.

If any of these are required, then you must first check that you are using a fire door leaf that allows these products to be fitted to it, and you must only use products that are listed as compatible with the certification of the door leaf.

The apertures must not be cut or prepared on site. They must be cut and prepared by the original manufacturer before the product is supplied.

This is because not all fire doors are tested, certificated or suitable to have these components fitted, and there are strict limitations regarding the specification of products and compatible intumescent protection, tight tolerances on the aperture size, and limitations as to the position that they can be fitted in.

Commonly they also required special linings and additional intumescent protection and fixings to protect these areas in a fire.



ORDER THE RIGHT DOOR: Altering the door for glazing apertures and air transfer grilles or resizing outside of the parameters on the certificate will make certification VOID and risks lives.

Different components and variables in a fire door assembly or fire doorset

Frame or Lining

The frame or lining is integral to fire performance and must be compatible with the fire door. The manufacturer's instructions will provide detail as to the correct specification of any framing parts and should be checked to ensure that the correct frame or lining, made from the correct and compatible material, and the correct size and profile is used.

**Not all fire door frames can be fitted with all fire doors.
Using frames of incorrect specification or material, or ones that are incompatible with the fire door will invalidate certification and any proof of performance.**

Definitions: The door frame

This is a component that is delivered pre-assembled into which a fire door can be hung the frame will usually have the rebate already created to form the door stop and the rebate grooved to take the intumescent seal.

Definitions: The door lining

This is a kit of components that will include 2 legs and a head and these will be grooved to take the intumescent seal. Door lining sets are normally constructed on site. Linings will usually require the fire door stop if the correct size and material to be fitted after the door has been hung.

Frames or linings can be supplied in a variety of designs, materials and profiles.

If the door stop is supplied separately it must match the specification and fixing method as detailed on the manufacturer's instructions or the fire certificate.

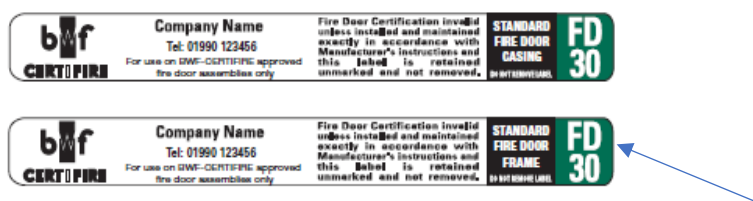
Definitions: The door casing

This is a kit of components that will include 2 legs and a head and these will be grooved to take the intumescent seal like a lining. The difference with a casing, is that the stop for the door is formed by a rebate in the lining, similar to a frame.

Frame or Lining checklist

To ensure you use the correct frame to suit the fire door, you must check:

- The frame or lining is compatible with the door leaf and ironmongery and is correctly rated to suit the door
- Whether the frame or lining needs to include groove to house intumescent and / or cold smoke seals.
- The frame or lining is the correct size and material as detailed in the manufacturer's instructions
- The frame or lining is suitable for use with the intended wall type and is the correct size
- The installation instructions are supplied
- If you source the frame from a different source than the fire door leaf, (in the case of a door assembly), a frame manufactured by a BWF-Certifire manufacturer who is certificated by an independent third party will carry a frame label. Checks should be made to ensure that the frame specification is compatible with the specific fire door leaf.



Example of a BWF-Certifire frame label, displaying compatible fire door rating

Materials used for frames and linings

The materials used to form a frame or lining will vary according to its fire rating. The door manufacturer's installation instructions will state which materials are acceptable to be used with their products.

Whatever the frame materials being used, you must make checks to ensure that any material (timber or otherwise) will be compatible with the certificated design of the fire door.

If you are sourcing frames from a different manufacturer than the one that you source the fire door from, you should check with the fire door manufacturer to ensure the selected species are compatible with their product, as some species like Ash or Beech may not be compatible.

Taking into account the gaps between the door leaf and frame

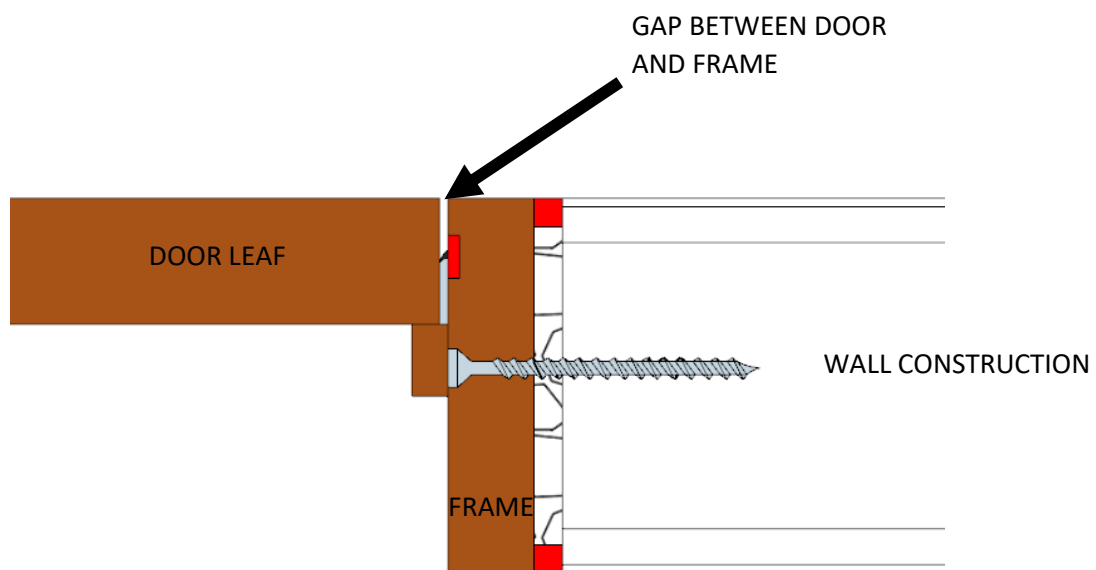
Once the frame has been fitted, there must be sufficient internal dimensions to account for the gap needed between the door leaf and frame.

The correct gap must be maintained around the complete perimeter of the door, (both sides, head and threshold).

Before resizing or fitting the frame, it is important to note the correct gap that is required to maintain performance and validate certification and take this gap into account in regard to aperture dimensions once the door is fitted.

The manufacturer's instructions accompanying the certificated fire door will state the correct gap around the entire perimeter.

Do not assume that the gap is a common size, you must always reference the instructions because exceeding the gaps will affect performance of the intumescent seals and cold smoke seals and ultimately the door in a fire and will invalidate certification. Checks should be made throughout and after the installation process is complete to ensure that perimeter gaps have been maintained.



Selecting Ironmongery

The ironmongery that is fitted to fire doors can be wide ranging in type, design, fire rating, finish and specification. But you must always check for the compatible specification on the manufacturer's instructions or the fire certificate before selecting and fitting any ironmongery.

If it is incorrect or incompatible with the doorleaf, it will invalidate certification and can severely impact the performance of the door in a fire.

The MOST important things are that:

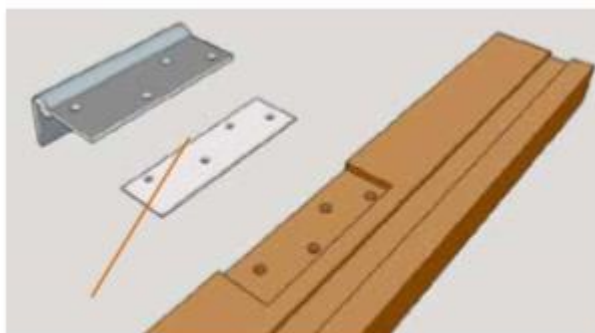
- The ironmongery is COMPATIBLE* with the fire door leaf and frame and is correctly fire rated to suit the fire door
- The ironmongery is BWF-Certifire approved
- The ironmongery is CE marked where applicable for fire performance.
- The selected ironmongery is fit for purpose and has a suitable usage classification for the environment that it is to be used in.
- Where required the correct intumescent protection is provided with the component and fitted in accordance to the instructions.
- The ironmongery is supplied with installation instructions

- The correct fixings are used

***COMPATIBLE Definition: All the ironmongery has been tested with the door and frame and has passed the fire test. Compatible ironmongery is detailed on the door certificate and within the manufacturer's instructions**

Ironmongery - additional intumescent pads /material

Most ironmongery requires additional intumescent protection by pads or mastic unless specified by the door fire certificate that it is not required. This is because in a fire the metal parts will heat up and can start to quickly damage the surrounding construction if these areas are not protected. The correct intumescent materials delay this heat spread.



Intumescent protection where required under hinge blade

Compatible and suitable ironmongery will provide detail within the packaging of the specification, size and location if additional intumescent protection is needed. Additional intumescent materials should be fitted in accordance with the installation instructions. Intumescent materials can vary, and they perform in different ways, such as activating at different temperatures or different expansion ratios. You must always use the correct materials and size as specified on the fire door certificate.

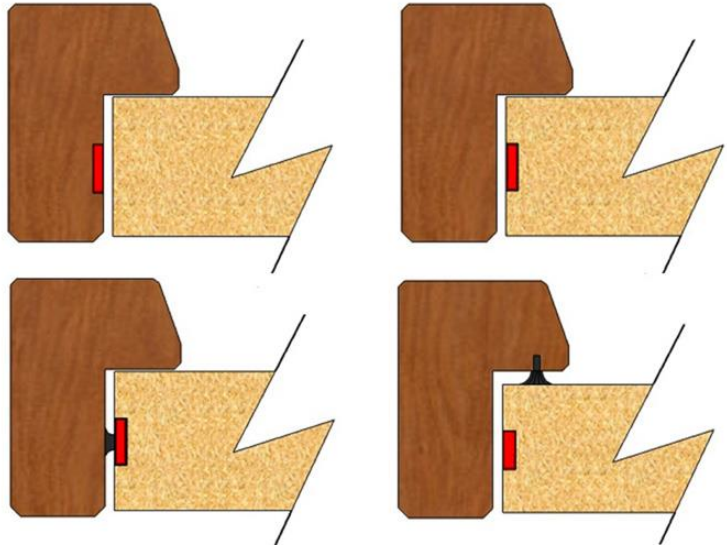
Choosing intumescent and cold smoke seals

Intumescent and cold smoke seals are different things. Intumescent seals expand and fill the gap when exposed to higher temperatures in a fire and they also act to keep the door securely in the frame when the door comes under enormous pressures and drafts in fire. Cold smoke seals fill the gap around the entire perimeter of the fire door and delay the spread of cold smoke around a building.

Intumescent and cold smoke seals can be supplied separately or combined as one seal

The intumescent and cold smoke seals that are available on the market are wide ranging in size, intumescent material, colour and specification. But they are not interchangeable and you must always follow the exact specification detailed on the manufacturer's instructions and fire door certificate.

You will commonly see seals located in either the frame or in the edge of the door leaf, however you should always check the correct location in relation to the manufacturers installation instructions and the fire door certificate for the specific fire door that you are working with.



The MOST important things are that:

- The seals are COMPATIBLE* with the specific fire door certification that you are working with. They must be made from the correct intumescent material, be the correct size and installed in the correct location.
- When working with cold smoke seals it is particularly important to maintain the correct gap (as specified in the instructions) between the door and the frame. Ensure that you take into account this tolerance when planning your installation.
- The seals are certificated by a third party and are suitable to be used with the specific fire door.

It is important to note that when doors are fitted in a double configuration, the specification and location of the intumescent and cold smoke seals will be different than on a single fire door. The manufacturer's instructions must always be followed in accordance to the configuration of the door assembly.

Section 6. Fire Door Installation

Before you start

Fitting doors into existing frames

There may be circumstance where the fitting of a new fire door frame or lining may not be possible or practical, if this is the situation, then the following additional steps may be necessary:

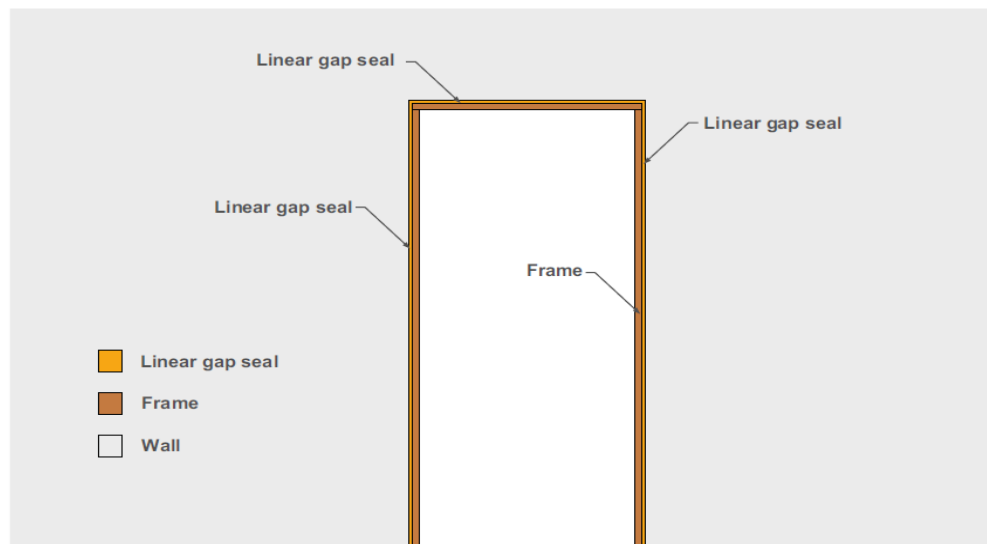
1. Grooving the existing frame to take the intumescent seal may be possible but difficult. It will be possible to groove the door as an optional alternative, but it is important that if this is done, then you must ensure that the door label is not damaged
2. The architrave on at least the hanging side must be removed, this is to allow an inspection of the joint between the frame and wall to ensure as with new frames, an adequate sealing of the gap between the wall and frame can be made.
3. The thickness of the frame should be checked to ensure that it meets the requirements of the installation instructions (guidance should be sought if it is not, from the door manufacturer).

Section 6. Fire Door Installation

Before you start - The Linear Gap Seal

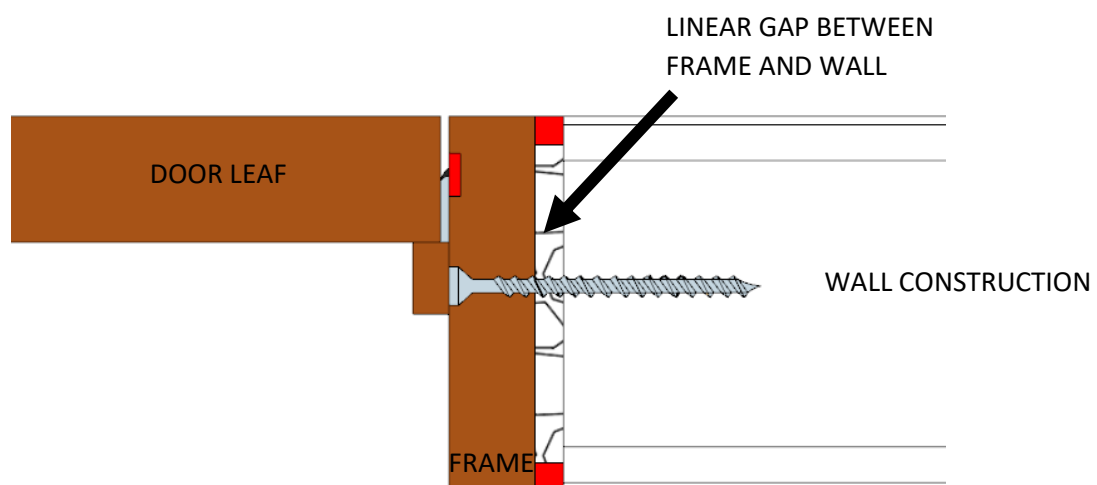
Planning the Linear Gap Seal

The linear gap seal refers to the method and materials used to fill any gap between the back face of the frame and the wall.



Door assemblies should be installed as stated in BS 8214:2016 for FD30 and FD60 installations or suitable CERTIFIRE approved linear gap sealing systems may also be utilised to protect the frame/supporting construction gap, subject to the conditions contained within the relevant certificate.

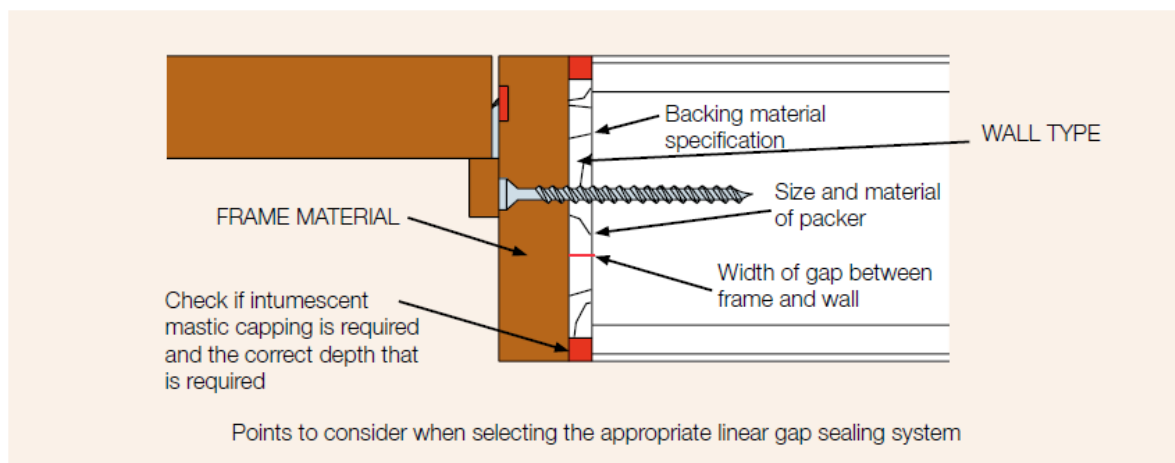
Before commencing installation, consideration should be given to sourcing the correct and compatible linear gap seal materials and methods. There are several variables that will impact on the choice of linear gap sealant systems. Only use the system that is compatible to your specific installation scenario.



Before you start - Planning the linear gap seal

The variables that impact on choice for linear gap seal system include:

- **The fire resistance of the installation (FD30 or FD60):** Only use linear gap seal systems that are certificated to perform for an equal number or greater number of minutes
- **Wall type construction and material of frame:** Only use compatible systems that have the specific combination listed on the compatible linear gap fire certificate or in the manufacturer's instructions
- **The width of the gap between the back face of the frame and the wall:** Linear gap seal systems are limited by the width of gap. If your gap exceeds these limitations, and you use an incompatible system, you risk poor performance and invalidation of certification
- **Intumescent mastic capping for smoke control:** Consider if the chosen linear gap seal system requires an unbroken capping of intumescent mastic around the perimeter to protect against smoke leakage. If this is the case ensure that packers are correct length and material to allow for capping
- If the gap requires an infill of 'backing material' – correct compatible material specification.



Before you start - Who needs to be made aware of the linear gap seal?

Ensure that all contactors that are involved with the installation of fire doors and the installation of linear gap sealing systems are aware of the chosen method and materials. These jobs are often completed by different individuals, at different times of the installation. Records should be checked (documentary and photographic) of the installation materials and methods used. This is useful to provide to the building control inspector that they have been correctly fire stopped and installed correctly, without removing the architrave.

Before you start - Linear gap seal checklist

Throughout the installation and linear gap sealing system process checks need to be made.

These should include:

- ✓ The correct gap is maintained between the frame and the wall to allow for the compatible and chosen linear gap sealing system. (around the entire perimeter)
- ✓ That the frame is centrally fitted in the wall opening to ensure the equal gap is maintained on both sides of the frame
- ✓ The correct materials are being used and have not been substituted on site for an incorrect specification
- ✓ The materials chosen are suitable for the application, are third party certificated and compatible with the product that is being installed. Ensure you reference the fire door manufacturer instructions.
- ✓ Any backfilling of materials in the gap is done with the correct materials and to a high standard with no gaps.
- ✓ The workmanship is of a high standard and there are no gaps in the intumescent mastic capping
- ✓ There is full sealing around the entire perimeter, including around the junction with the floor
- ✓ Make the same checks on the gaps between the head of the frame and the wall construction above
- ✓ Understand if the packers require a capping of intumescent mastic across the face of them and check that they are fitted in the correct location
- ✓ Ensure that the packers are the right material and dimension to allow for the correct depth of mastic
- ✓ Check that the installation of backing materials or other fire stopping materials.

Many installers photograph their work in progress and record evidence to prove that the installation has been done correctly.

Remember that the linear gap is difficult to inspect once the architrave is installed without invasive inspection.



Before you start - The delivery and storage of fire doors and components on site before installation

Care of product on site

Installation of fire doors should be left until the latest possible point in the overall build, as fitting doors and their components too early in the build schedule can make the product susceptible to damage on site.

Rapid changes in moisture content as the building dries out can affect the overall size and stability of product, and the critical gaps between the door leaf and frame. It is highly recommended to schedule delivery of product so that they are not stored on site for extended periods of time prior to installation.

Delivery

- Fire doors are heavy. Make sure that there are sufficient facilities/aids to manage doors and components
- Doors must be lifted evenly and securely to avoid any bending or damage of components or frames
- Protective wrapping should be kept in place as long as possible
- Paint grade doors should be sealed and primed on all faces and edges immediately after delivery.
Do not paint over the fire label.



Storage

If products are to be stored for a minimal time prior to installation, strict environmental conditions must be met to ensure quality of product.

- Do not store in damp or exposed areas or near standing water, in direct sunlight or areas where there may be exposure to significant heat
- Stored flat, on a level and dry surface and kept clear of the floor on at least three level and robust bearers
- Protected from dirt and damage but without restricting air circulation and stacked so that they are not exposed to daylight as ultra violet light can cause fading or discoloration of timber and veneers
- Stored in the sequence they will be fitted to avoid double handling and avoid dragging them across each other in the stack
- Doorsets with projecting sills must have spacers between them in the stack to avoid damage.

Care of fire doors on site (pre-installation) – moisture content of timber doors

For long term performance of the door and finish, the appropriate moisture content must be maintained during storage on site and during the installation process. Rapid changes in moisture content and humidity can affect the product. Product should only be installed once the site conditions (moisture levels and temperature) are suitable and similar to the conditions that the product will experience in service.

- Ensure that the moisture content of the product is kept close to the level at which it was when the door was manufactured
- Storage on site should be kept to a minimum

- Checks should be made on the building to ensure that moisture levels and temperature are similar to what the product will experience in service
- Internal doors should be conditioned slowly to the service conditions before fitting
- Protect from abnormal heat, extreme dryness, humid conditions or sudden changes of temperature or humidity
- Do not store or fit in the building until the wet trades are finished and the building has dried out.

Before you start - The Pre-Installation Checklist

Wall type: Of suitable fire resistance for the fire door assembly or doorset rating. Check that the correct structural reinforcement or aperture linings have been installed correctly.
Installation Instructions: You have the relevant installation instructions from the manufacturer
Linear gap seal: You have suitable materials and intumescent materials and mastics to fill the gap as detailed on the installation instructions and fire certificate data sheet. The linear gap seal method and materials has been checked and agreed, suitable for the specific installation scenario.
Door leaf: Suitable for the fire door rating. Free from damage. Traceability of label/s on top of door undamaged
Door frame: Free from damage. Suitable for the fire door rating. Compatible with the door assembly or doorset
Fire and smoke seals: Free from damage. Suitable for the fire door or smoke rating, compatible with the door assembly or doorset, suitable for the fire door rating, compatible with the door assembly or doorset.
Vision panels or other apertures cut in the door leaf for ironmongery such as letter plates or air transfer grilles: Check all ironmongery, glass, glazing beads, seals and intumescent materials are in place and undamaged.
Ironmongery: Check all ironmongery, glass, glazing beads, seals and intumescent materials are available with their intumescent protection, and undamaged.
Health and safety: You have carried out a thorough risk assessment of the installation process and limited any risks
Competency of workforce: Ensure your workforce are suitably competent to install fire doors.
Documentation and checks: Ensure you have a documented process to record the installation and the quality of workmanship

The Installation Process

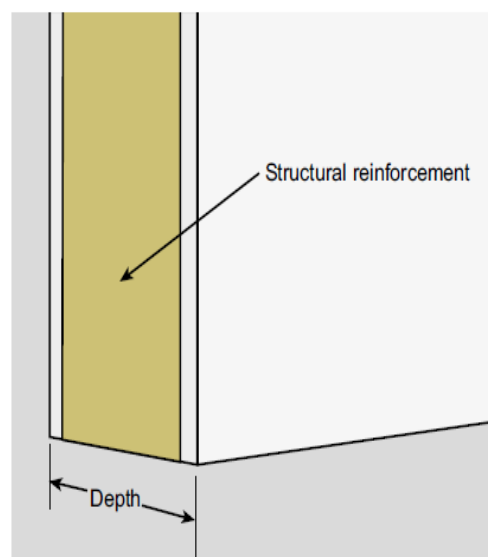
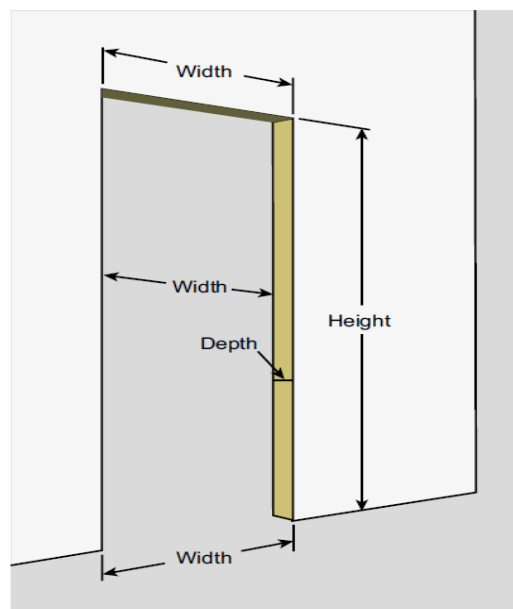
This best practice advice has been developed to aid the installation process of both fire door assemblies and fire doorsets. Some of the operations detailed are not relevant to the installation of fire doorsets because these operations are completed by the fire door manufacturer, under a strict factory product control system, prior to the delivery to site.

This advice has been developed to complement the specific manufacturers installation instructions and should not be used in isolation or as a substitute for them.

Always follow the manufacturer's instructions to ensure that certification is maintained.

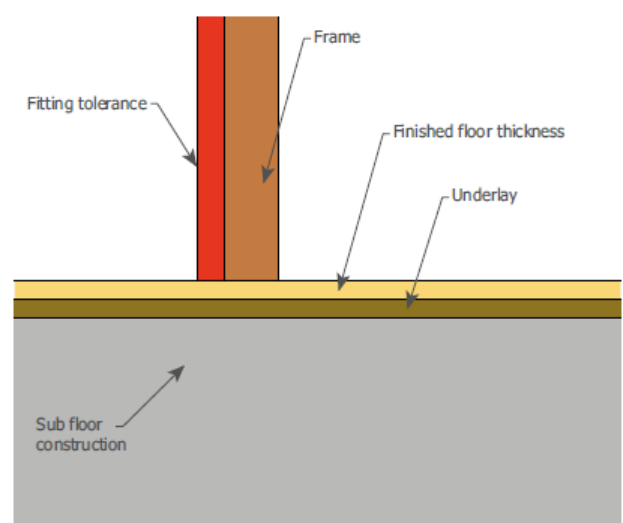
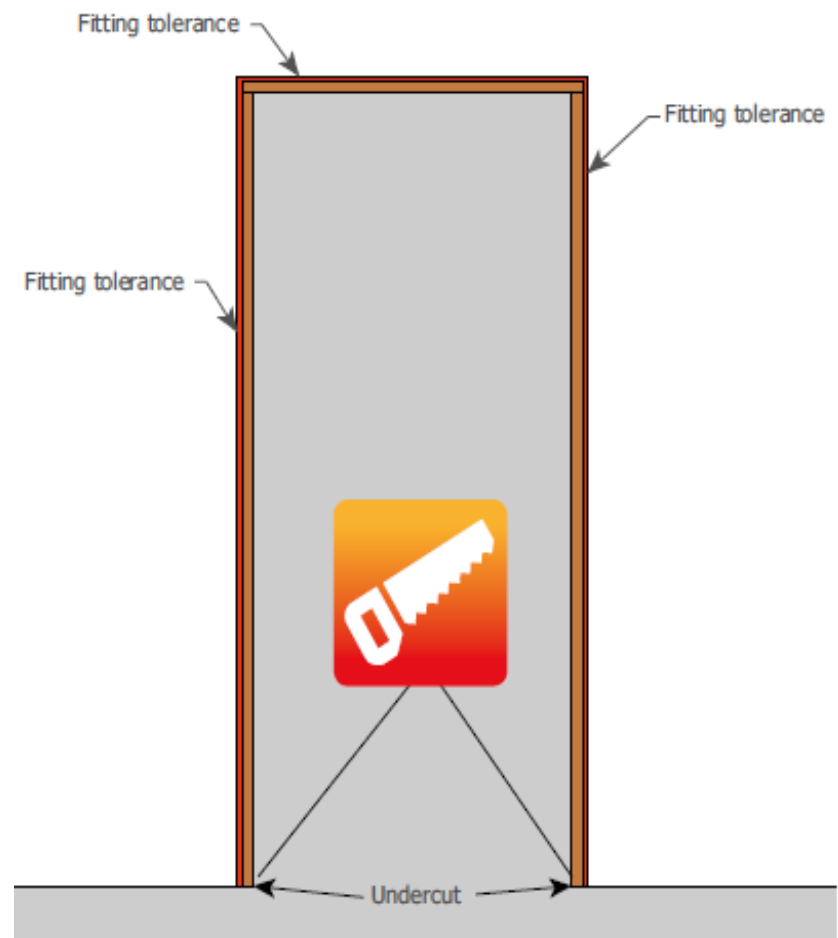
Preparing the aperture for installation

1. Ensure the work area is clear, protected from other trades and clear of any debris
2. Check the aperture is square and plumb level and has sufficient tolerance to enable the frame to be located accurately, without distortion
3. Check that any structural reinforcement such as stud work and aperture linings are in place within the wall construction (jambs, head and threshold) before you start. The size of compliant structural reinforcement is given in the specific fire door certificate
4. Check that you are fitting the correct door in the aperture. All doorsets or door component should be labelled with their location
5. Ensure that you have the specific manufacturer's installation instructions to hand to reference throughout the installation
6. Check the overall size and depth of the aperture and confirm that the product that has been supplied is correct.



Setting out the frame size

- Confirm the finished sizes of the frame in relation to the door leaf size, wall aperture size and required fitting tolerances. Take into account the gaps required between the door and frame and the finished floor height
- Confirm the finished floor height if it is not in place when the frame is installed. Account for this is any modifications made to the overall frame height
- Undercut: The term undercut refers to the additional length that is sometimes added to the bottom of the frame stile and bottom of the door leaf, to allow for installation scenarios where the final floor coverings are not in place, or the final thickness of floor coverings is not known at the time of ordering product. The undercut allows removal of material to account for this. The undercut dimension should be checked prior to starting any installation
- It is important to ask for information regarding the floor coverings and undercut, to ensure that excessive material is not removed by installers on site, and that the frame is installed at the correct height within the aperture, to allow for any further installation of floor coverings that may happen in the build process after the fire door has been installed.

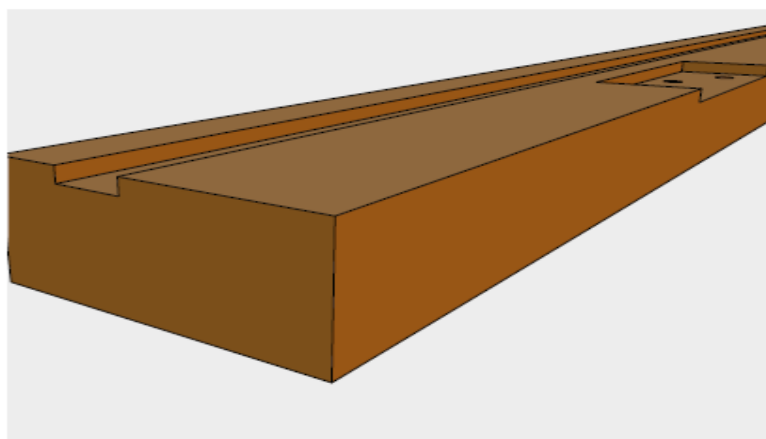


Setting out the frame for ironmongery and seals

- The shoulder of the joint at the top of the stiles of the frame should be used as the datum. Always work from the top down to set out frame components in their correct position. Take into account the gaps required between the door and frame
- If this is done on site, it is recommended that all frame resizing and machining for components is completed before the frame is assembled to ensure accuracy
- All locations of intumescent and smoke seals, hinges, locks and other ironmongery will be specified on the manufacturer's instructions. Sometimes the seals are located in the frame or in the door leaf edge
- A minor mistake will invalidate certification and can affect performance in a fire
- Mark out the location for all machining required on the frame for hinges and if required, the lock or latch keep
- Always work from the shoulder down and remember to account for any gaps between the top of the door and the frame, and the bottom of the door and the frame
- Ensure that the depth of machining allows for the inclusion of additional intumescent material or pads if required on the manufacturer's instructions.

Machining the frame with grooves for intumescent and or combined intumescent and smoke seals

- Sometimes the seals are located in the frame or in the door leaf edge. Always check the manufacturer's instructions and only use compatible seals for compliance with certification
- Many installers would choose to only fit the compatible seals once the product has been fully finished on site. If this is the case, the thickness of any paint or other decorative finishes should be taken into account when machining the width and depth of the groove
- Check the manufacturer's instructions for the correct specification, position, size and depth of the grooves for intumescent and / or combined intumescent and smoke seal
- If the groove for the seals is located in the frame, machine the groove in the exact position specified on the instruction
- Remove any dust or debris from the groove and undertake checks for position and size accuracy, and compliance with the manufacturer's instructions.



Fitting the frame with intumescent and or combined intumescent and smoke seals

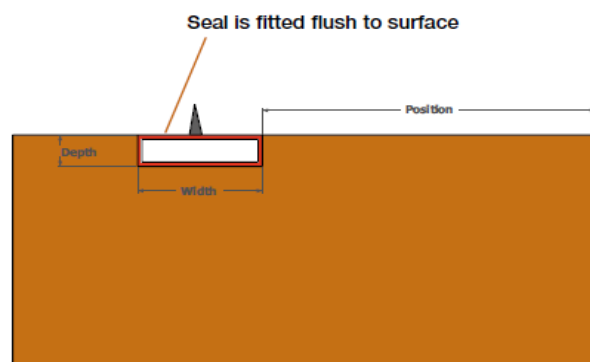
- Seals are either located in the frame or in the door leaf edge. Always check the manufacturer's instructions for compliance with certification
- Many installers choose to only fit the seals once the product has been fully finished on site. If this is the case, the thickness of any paint or other decorative finishes should be taken into account when machining the size and depth of the groove



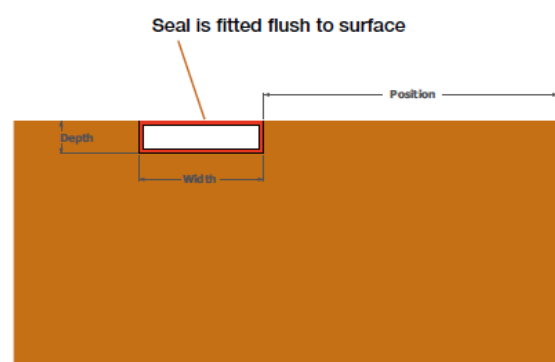
- Note that combined intumescent and smoke seals must not be painted over as this will affect the performance
- Ensure that the make, material, number of and size of seals is compatible with the manufacturer's instructions and with the rating of the fire door and door configuration
- Seal configuration is different for single or double doors and is specific to individual door certification. Always check the certificate for compatibility
- Remove any dust or debris from the groove. Undertake checks for location accuracy and compliance with the manufactures instructions
- Press the seals firmly into the groove (remove self-adhesive backing on seal and apply pressure full length of the seal to make sure it is secure)
- The face of the seal must be flush with the surface of the groove. (Including any additional paint decoration)
- The seals must be fitted in full length strips and be butted up closely in the corners, no gaps!
- It is not recommended to use any mechanical fixing to fix the intumescent into the groove.

Check:

- ☒ The entire perimeter seal to ensure that it is full length with no gaps or joins
- ☒ Fitted securely in the groove – full length
- ☒ Fitted flush with the surface of the groove
- ☒ Undamaged



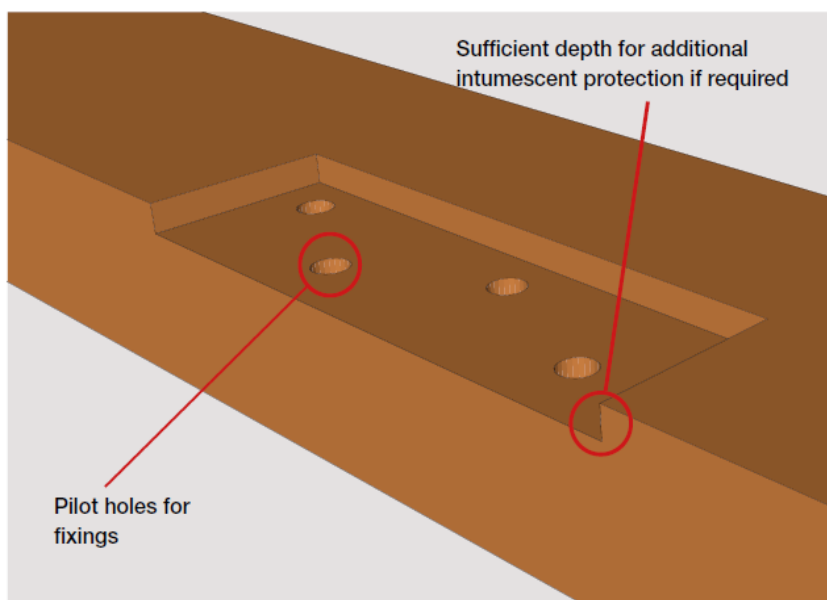
Cross section of frame with intumescent and smoke seal



Cross section of frame with intumescent seal

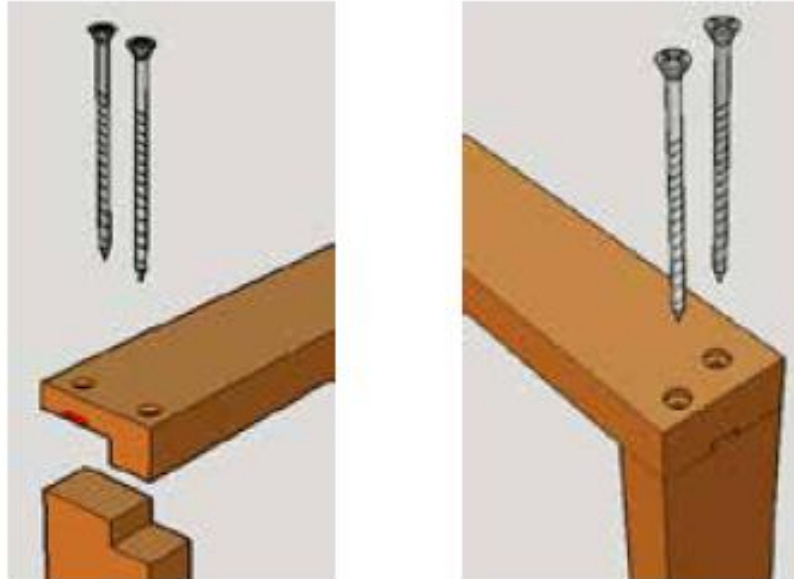
Machining the frame with for hinges and lock / latch keep

- Always check the manufacturer's instructions and only use compatible components for compliance with certification
- Many installers would choose to do final fix of the compatible ironmongery once the product has been fully finished on site. If this is the case, the thickness of any paint or other decorative finishes should be taken into account when removing material from the frame to accommodate ironmongery
- Ironmongery often needs additional intumescent pads, jackets of materials fitted to perform in a fire. When setting out machining for ironmongery always ensure that tolerances are added to accommodate any additional intumescent protection
- Always check the manufacturer's instructions to confirm if additional intumescent materials are needed, and to ensure the correct specification, size and thickness, and location
- Do not exceed the maximum dimensions given for material removal on the manufacturer's instructions
- Check the manufacturer's instructions for the correct specification, location, size and depth for the hinges and keep
- Check the additional thickness and materials for any additional intumescent materials required and include this in the setting out
- Take into account the position of the doorstep and any doorstep smoke or intumescent seals (such as batwing smoke seal) that would affect the position of the hinges
- Machine out in the exact position specified on the instructions
- Remove any dust or debris from the groove and undertake checks for location and size accuracy, and compliance with the manufactures instructions.



Jointing of the frame

- A rebated frame will require a joint on the top corners of the frame. The manufacturer's recommendations and fire certificate data sheet should be followed regarding types of compatible joints. Always work from the top down to set out frame height using the shoulder of the joint at the top of the jambs of the frame as the datum and make any height adjustments from the bottom of the jambs

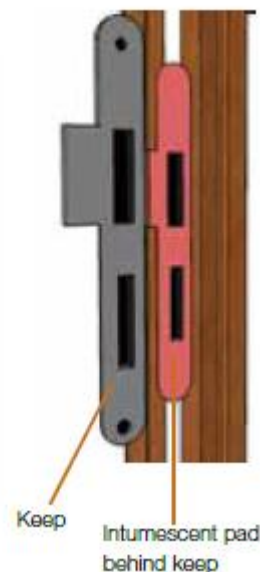
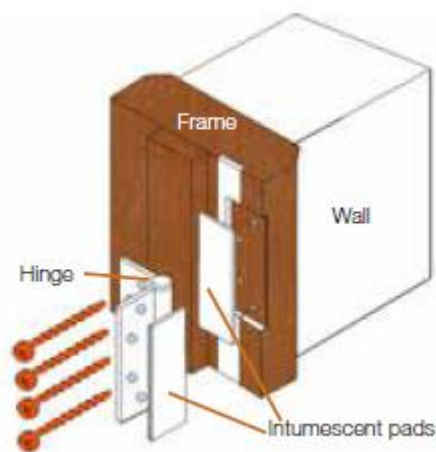


Assembly of the frame

- Before fixing the corners of the frame together countersunk pilot drill holes must be drilled to prevent timber from splitting
- The gauge, length and material of corner frame fixings must be as specified on the manufacturer's instructions
- Fix the corners of the frame together using the specified fixings, adhesive and methods detailed on the manufacturer's instruction
- Check that all joints are tight, square, secure, and robust and remove any loose fibres for a neat finish
- Check that the frame is square, if adhesive is used, allow time for this to cure, and ensuring then the frames are laid evenly on a level surface and are square.

Fitting ironmongery to the frame and door leaf

- Ensure that the correct and compatible mechanical fixings (screws) are used to fix ironmongery to the frame. Check the manufacturer's instructions to confirm the specification (size, length, gauge, material). The fixings should be supplied with the ironmongery product
 - The location of ironmongery components on frame and doors is critical. Ironmongery components often need additional intumescent pads, jackets of materials fitted to perform in a fire
 - When setting out machining for ironmongery always ensure that tolerances are added to accommodate any additional intumescent protection
 - Always check the manufacturer's instructions to confirm if additional intumescent materials are needed, and to ensure the correct specification, size and thickness, and location
- 
- Remove any dust or debris from the machined recesses
 - Place the hinge or keep into the machined recess and check that it is in the correct location, securely located against the edges of the recess
 - If additional intumescent materials, pads or jackets are required, ensure these are in location before you fix the component
 - Pilot drill a hole suitable in size and depth for the compatible screw fixing, to prevent timber from spitting
 - Secure the ironmongery with the screws, check that all screws are installed
 - Do not overtighten the screws or damage the heads
 - Do not exceed the size and depth limitations of material that can be removed from the door leaf to accommodate ironmongery components such as the lock or latch as stated on the manufacturer's instructions.



Face fixed additional ironmongery

Sometimes additional face fixed ironmongery is required such as signage, door number, push or kick plates.

Additional checks should be made to confirm that the door is suitable to have the parts fitted and the correct length fixings are used that will not impact upon fire performance.

Check:

- ☒ All ironmongery has been fitted with intumescent pads, jackets or materials if required. Check the manufacturer's instructions to ensure compatibility with certification
- ☒ Fitted securely in the machined recessed and all screws are in place
- ☒ There is no damage to any components

Fitting of letterplates and other ironmongery into aperture cut-outs into the door leaf

- **Remember! Cutting apertures on site invalidates certification**
- Some ironmongery such as letterplates and air transfer grilles may require final fitting on site into pre-made apertures in the door leaf
- Prior to fitting ironmongery such as the air transfer grille cover plate or the letterplates, checks should be made to confirm the product is compatible with the certification of the door leaf and that it is the correct fire rating. Checks should also include the correct size and position of the aperture, the presence of timber aperture lining (where required), the correct and compatible intumescent protection such as the intumescent block behind the air transfer grille or the intumescent sleeve inside the letterplates. The correct fixings must be used as supplied with the product.



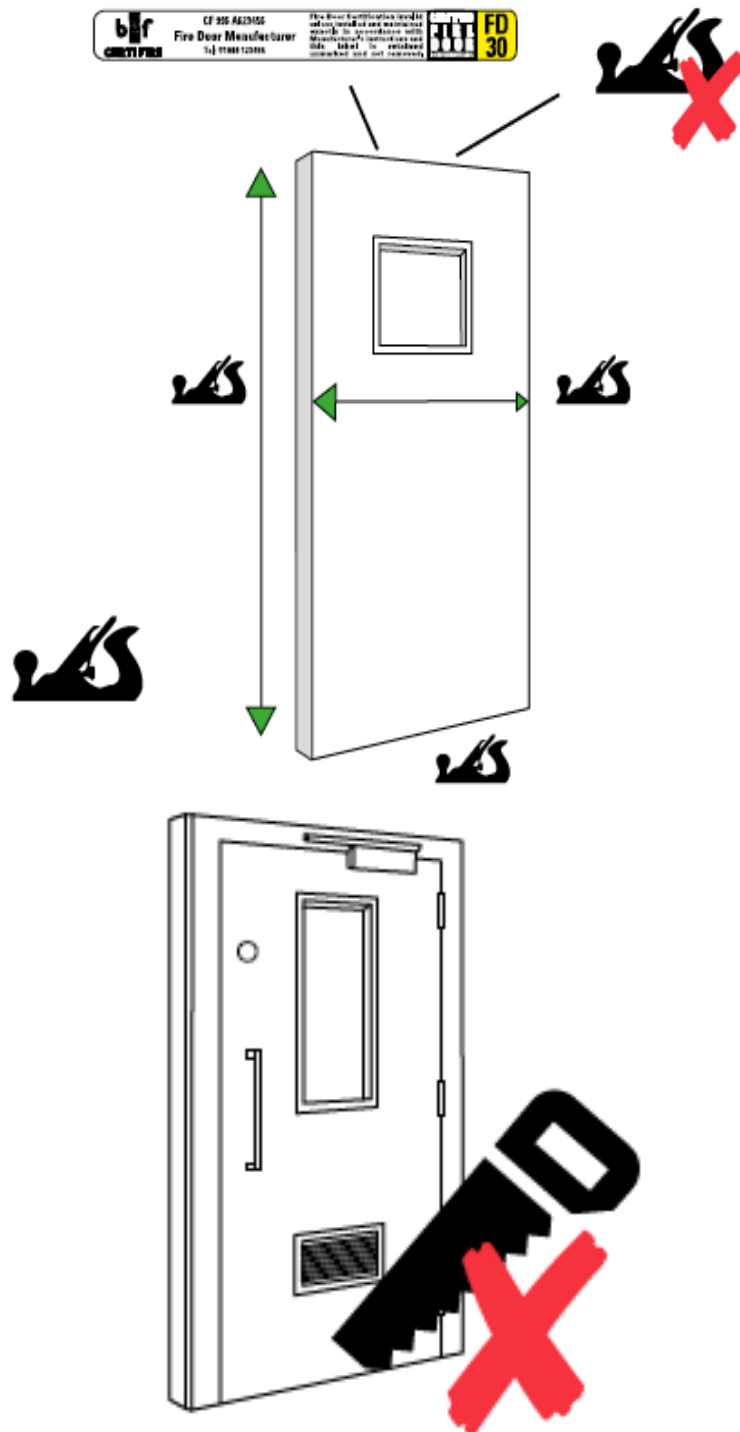
Preparing the door leaf Ironmongery

- The compatibility of ironmongery must be in accordance to the manufacturer's instructions and the fire door certificate
- The manufactures instructions will give advice as the location of ironmongery components
- Where required, ironmongery must be fitted with its compatible intumescent protection, the manufacturer's instructions will advise where this is required and the specification
- Follow the steps given earlier in this document to machine the ironmongery into the door leaf
- All ironmongery should be fixed using the fixings supplied with the ironmongery.



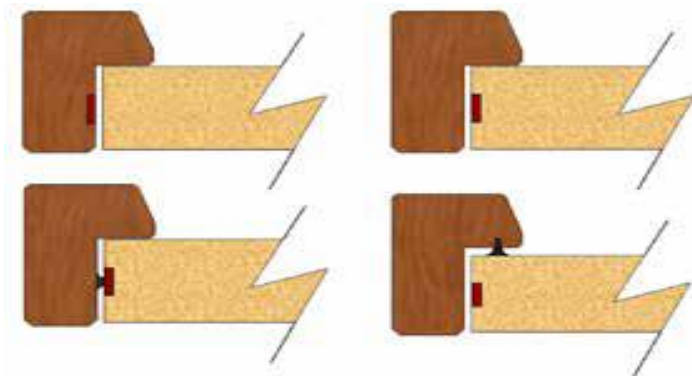
Resizing of the door leaf

- A door leaf should only require minor resizing to fit the frame. Check the manufacturer's installation instructions for the maximum amount of material that can be removed
- Material should not be removed from the top of the door leaf
- The BWF-Certifire label/s should not be removed, damaged or repositioned as this will invalidate certification
- Always check the manufacturer's recommendations.



Seals located in the door leaf

- Some fire doors require the intumescent and smoke seals to be located in a groove in the perimeter edge of the door leaf
- In this case, reference should be made to the manufacturer's instructions regarding the specification, number of and position of seals
- Follow guidance earlier in this document regarding location and machining of the intumescent groove.



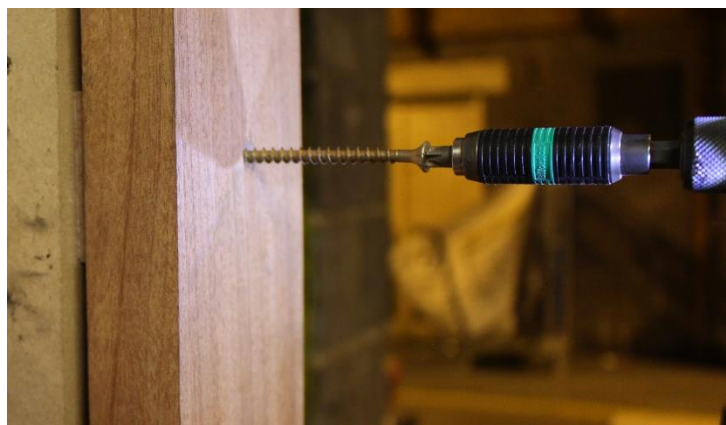
Drop down threshold seals

- Ensure the groove for any drop-down threshold seal is in the correct position and to the correct dimensions
- Use the fixings provided to install the component with any additional intumescent where required
- Always lock the threshold seal in the closed position whilst hanging the door and only release when final overall checks of the doors opening action is tested. This reduces the chance of damaging the seal.



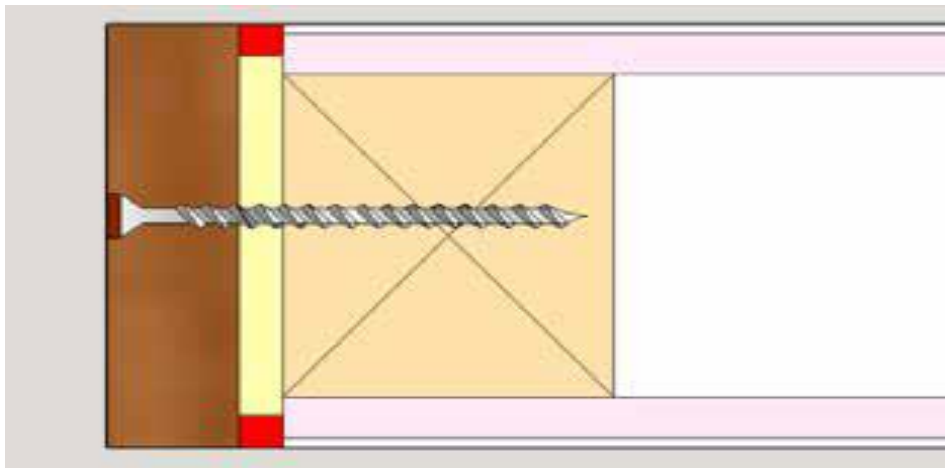
Fixings for the frame

Follow the manufacturers guidance regarding the material, length and number of screws required. In all other cases, steel screws (CE marked for structural use and specified in accordance with Eurocode 5) should be 5 mm in diameter wood screws with countersunk head. The screws should achieve a minimum depth into the wall construction of 70 mm once installed. Screws should be positioned and installed to ensure the frame components remain square and do not distort. When metal components come into contact with some timbers that contain certain extractives, corrosion can occur. Checks should be made to ensure that fixings and frame materials are compatible.



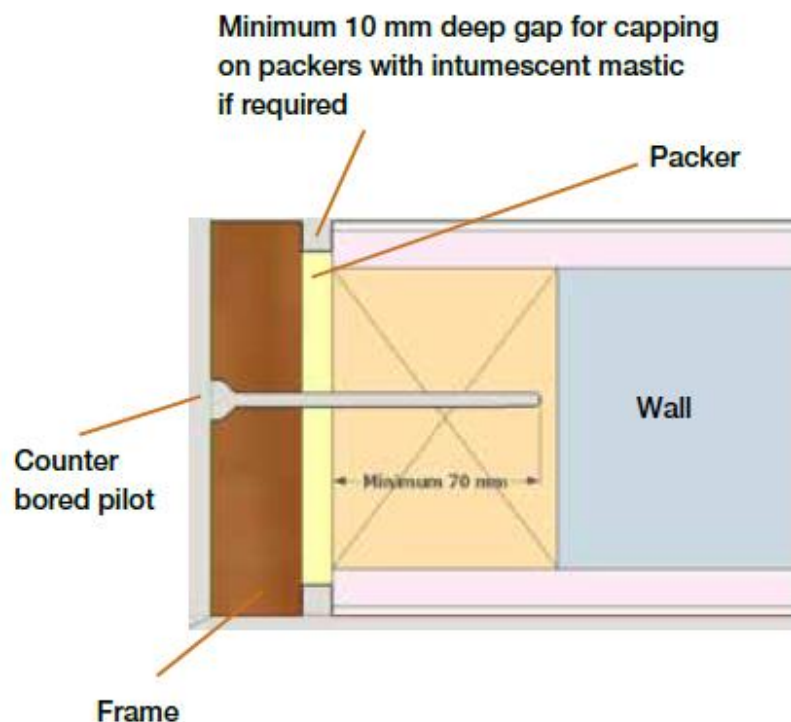
Packers

- At each fixing point a packer needs to be inserted between the back side of the frame and wall
- The packer must be exactly the same thickness as the gap to prevent frame distortion when fixed in place
- The packer material and size must be in accordance to the specification detailed on the fire door certificate or within the compatible linear gap seal certificate. If the specific material for the packer is not specified, then it should be of the same material as the frame
- Be aware that many CERTIFIRE linear gap sealant systems as detailed on the relevant certificate require a 'capping' of intumescent mastic to be applied over the face of the packer (front and back). In this case the packer length should be reduced in length to allow for the correct depth fill of intumescent mastic on both sides
- It is best practice to fix through the packer to secure it in place.



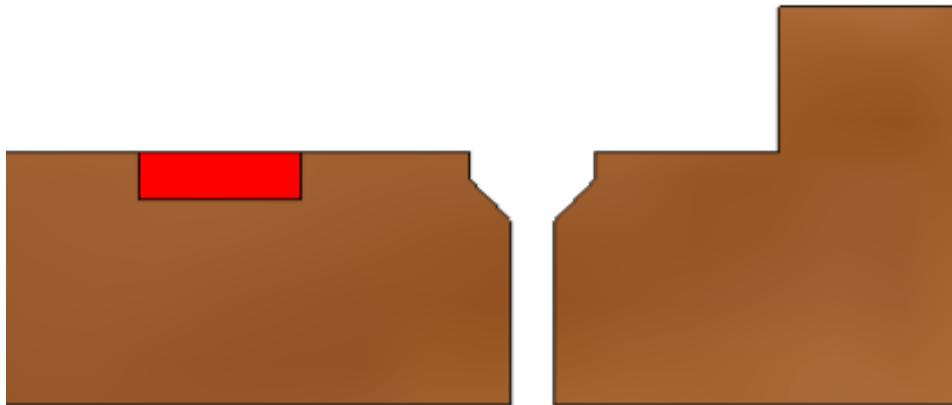
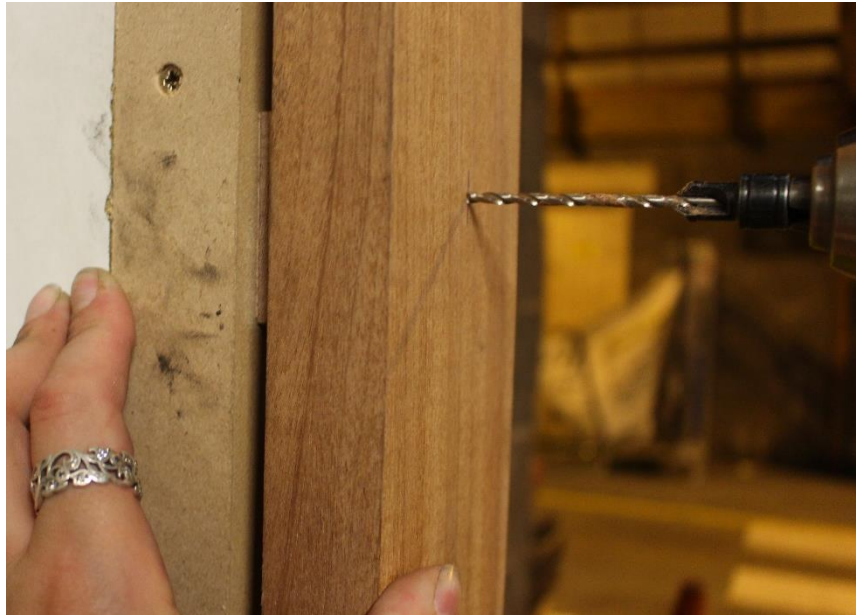
Specification of frame to wall fixings

- The specification of mechanical fixings should be compatible with the wall type
- The fixings must achieve a depth of minimum 70 mm into the wall construction (excluding any fitting gap)
- The gauge of fixings should be a minimum of 5 mm (excluding any rawl plug or expanding fixing.)
- Pilot holes (5.5 mm diameter) through the frame should be drilled to accommodate the size of the fixing
- The pilot holes must be counter bore holed to ensure that the head of the fixing and any fixing flange is located below the surface of the frame
- The counter bore holed should be plugged with a compatible timber plug. The head of the plug should be finished so that it is flush with the frame surface.



Preparing the frame for the wall fixings

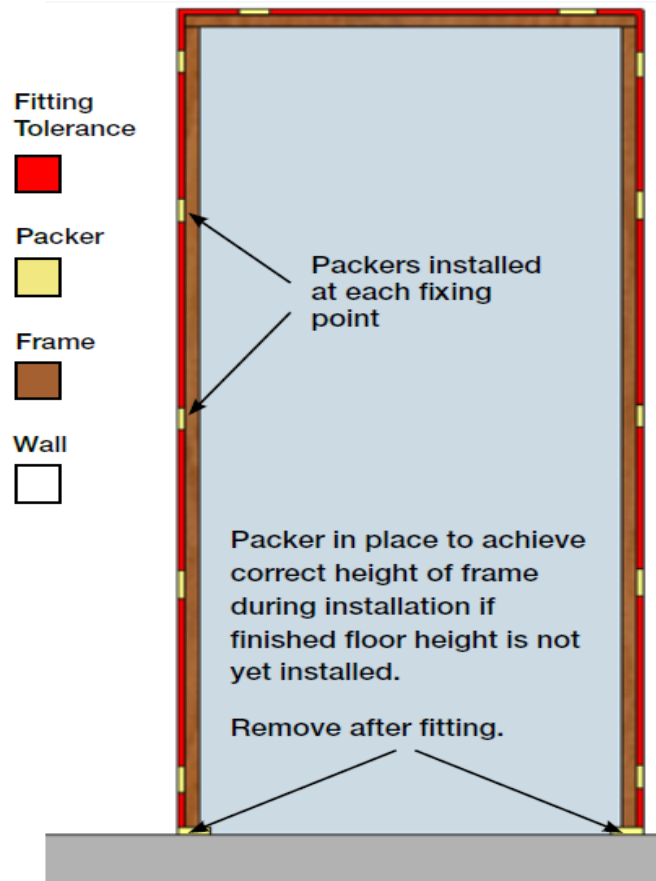
- Before positioning the frame in the aperture, counter bored, pilot drill holes must be drilled to prevent timber from splitting
- The position and number of fixings required will be detailed on the manufacturer's recommendations. In all other cases the frames should be fixed at between 120 mm – 200 mm from the corners and at a maximum of 450 mm centres
- Drill a 5.5 mm diameter pilot hole through the frame and counter bore the top at each fixing location
- Remove any loose timber fibres from the edges of the hole with a fine grade finishing paper
- Fixing in the head of the frame – best practice is to follow guidance above regarding location and number of fixings
- Frames over 900 mm in width must have head fixings in accordance to manufacturers recommendations and information given above.



Cross section of frame with counter bored pilot hole and frame intumescent strip

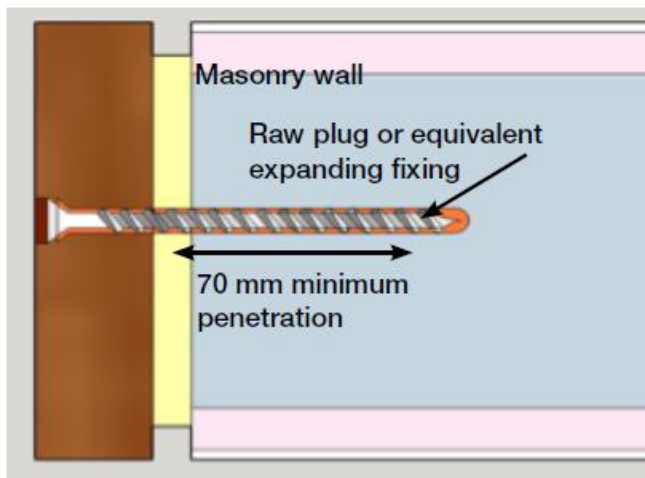
Locating the frame in the aperture

- Position the frame centrally in the aperture, with equal fitting tolerances on both sides
- Check the correct height of the frame – this may change if you do not have final floor coverings in place. Use packers under the frame to achieve the correct height – these packers should be removed once final fixing has taken place
- Ensure that the frame is plumb level and square
- Ensure the frame is positioned to the correct depth within the aperture – take into account any decorative wall coverings that may not yet be installed
- Only use packers that are full depth of the frame, to ensure that frame components are not distorted as fixings are applied
- Loose fit any packers between the back of the frame and wall at the fixing points already marked on the frame. Take care to use the correct thickness and depth of packer so that the frame is not distorted
- Check that the dimension of the door frame aperture is sufficient to accommodate the width of the door leaf plus any gaps either side
- Check that the height of the frame aperture is sufficient to accommodate the height of the door leaf plus any gaps above or below the door
- Drill a pilot hole into the wall construction of a size and depth, suitable to take the fixing type.

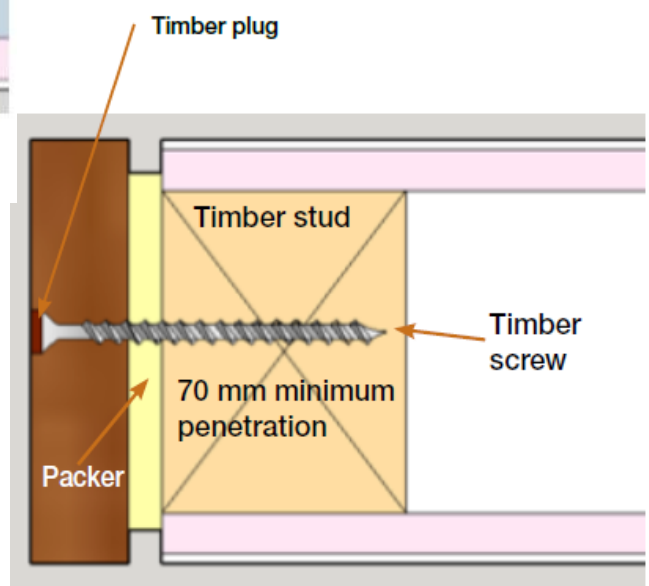


Fixing the frame

- Start on the hinge jamb at the top fixing. Insert screw counterbored hole point. The fixings must achieve a depth of minimum 70 mm into the wall construction (excluding any fitting gap)
- Position the screw at the correct depth (including any raw plug or expanding fixing, by lightly tapping it with a hammer
- Slowly do up the screw into its final position, taking care not to damage the head of the screw or over tighten it
- Ensure that the screw head is tightly against the frame and fixing is robust. Ensure the head of the screw is well below the surface to accommodate a timber plug above it
- Do not overtighten fixings, as this may cause the straightens of the frame sections to distort- the correct thickness and position of packers in the gap between the frame and the wall will prevent this
- After each fixing has been applied carry out checks to ensure that the frame is still in the correct position and is square and plumb level and that the frame is at the correct height to accommodate floor coverings
- Once all fixings are in place carry out checks to ensure that there is no distortion of the frame and that the frame aperture is exactly the right dimension (height and width) to accommodate the door leaf
- Remove any height packers and install timber plugs to cover fixings, Finish the plug flush with the surface.



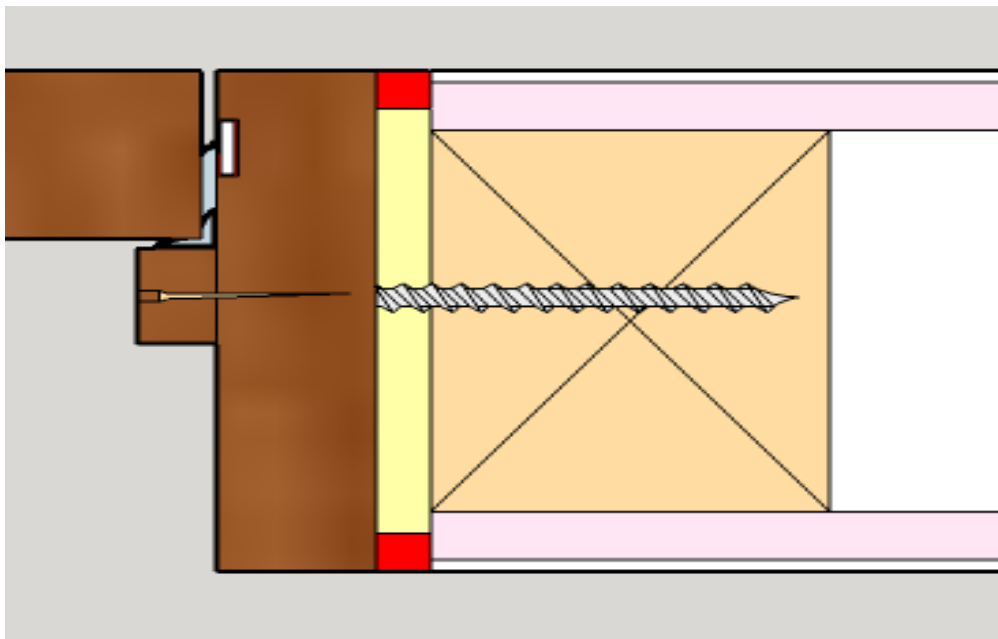
Cross section of frame fixed with packer to masonry wall construction



Cross section of frame fixed with packer to timber stud wall construction

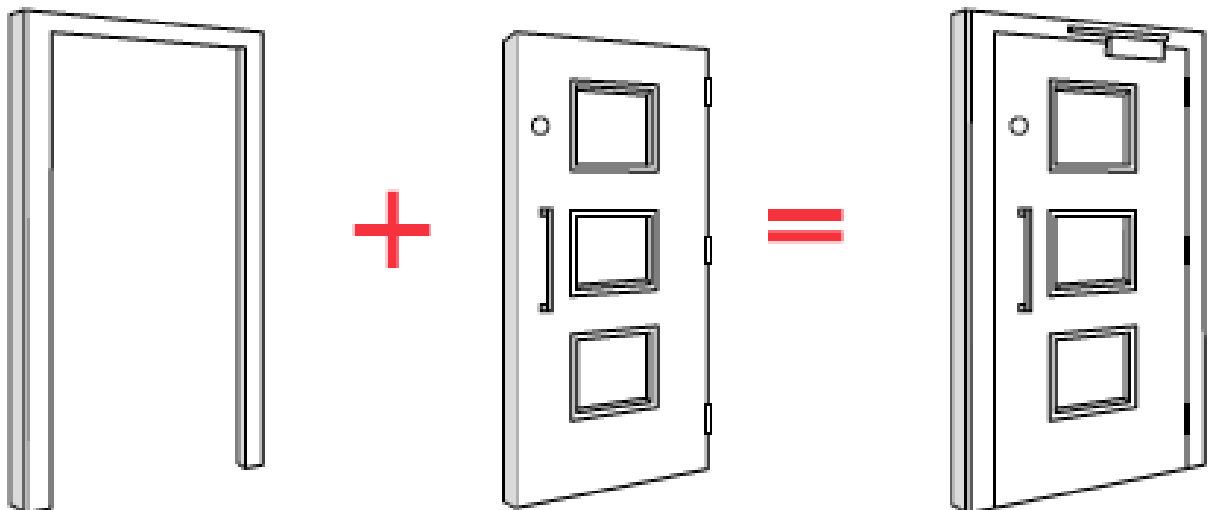
Fixing the doorstop

- Where the doorstop is supplied separately to the frame section, often the installer will choose the fix this once the door is hung. This helps to ensure that it is in the correct position in relation to the closed-door leaf position in the frame
- Check if additional smoke seals are to be fitted to the doorstop. If this is the case, apply these seals to the face of the doorstop before fixing the doorstop to the frame as this will ensure the correct position and gap required for the smoke seals to engage when the door is closed
- Doorstops must be fitted full length without breaks. In the corners the doorstop must be butted up tightly together with no gaps
- Follow the manufacturer's recommendations. In all other cases, doorstops should be fixed with adhesive and a mechanical fixing such as a 1 mm gauge steel panel pin that will achieve a minimum penetration of 25 mm into the main frame section
- Some manufacturers have specific guidance regarding type of fixing required, always check the manufacturer's guidance for recommendations first
- Position the doorstop against the face of the door in the closed position, starting at the top corner of the hinge side
- Apply adhesive and fixings from the top down, ensuring that the doorstop is flush against the door leaf in the correct closed position. Make checks at every fixing point
- Unless manufacturer provides guidance, doorstop fixings should be at 100 mm in from the corners of the frame and at a minimum of 250 mm centres
- Where there is a smoke seal doorstop in place, specific guidance should be sought from the seal manufacturer regarding the optimum gap between the door and frame in the closed position to ensure that seals are not over compressed or damaged in operation
- Fixing heads should be finished below the surface to allow for filling with wax to match finish.



Hanging the door leaf

- Position the hinges into the hinge recesses created in the door leaf using the correct intumescent packers where required) and the correct fixings supplied with the hinges
- Position the hinges into in the frame hinge recesses and ensure that intumescent pads are used under the hinge blades as specified in the installation instructions
- Counter bore pilot holes to the correct diameter and length to suit the hinge fixings into the frame
- Apply 2 fixings at each hinge point into the frame
- Remove the packers at the base of the door taking care not to damage the door leaf
- Swing the door and check that it closes correctly in the frame and that the gaps around the door leaf are correct
- Apply the final fixings at the hinge points and repeat checks the fixings into the frame, ensuring that screws are not overtightened and the screw head is not damaged
- Check the correct gap between the door leaf and frame when the door is closed
- Check that the smoke seal is in contact with the frame/door leaf around the full perimeter when the door is closed
- Check that the drop down acoustic and cold smoke seal is correctly adjusted and is engaging with the finished floor height when the door is closed.



Fitting the Door Closer



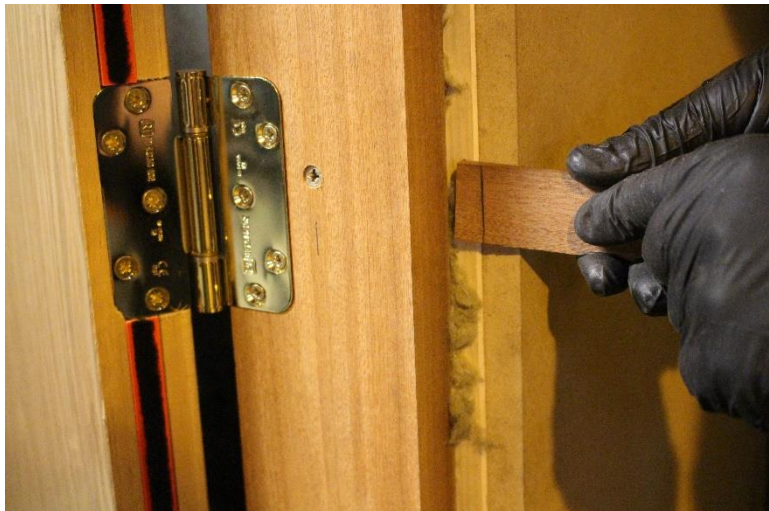
- The door closer used must be suitable for the usage class and specific door dimensions
- The door closer must be positioned correctly in accordance to the manufacturer's recommendation as incorrect positioning can cause early product failure
- Some door closers require additional intumescent protection – check the fire certificate to confirm if required and the correct specification
- The fixings for door closer will be supplied with the product. Ensure that the right fixings are used and that pilot holes are drilled at fixing points to prevent timber from splitting
- Once all fixings are applied the door closer must be adjusted to comply with opening and closing forces as stated in the Approved Document M



- Once the door closer is fully installed, perform checks to ensure the correct gaps around the door leaf, that the door leaf closes snugly against the doorstop and excessive force is not required to operate the door.

Backfilling the gap between the frame and the wall

- Before selecting material and methods for backfilling the gap between the frame and the wall you must consider the following critical factors to ensure the correct materials and methods are used.
- The gap behind the architrave, between the back of the frame and wall can become one of the weakest points for fire performance if it is not filled correctly
- The filling detail and materials varies depending on the fire rating of the door assembly or doorset that has been installed. It also depends on the width of the gap and the size of the architrave, the architrave material and the overlap of the architrave on both the wall and the frame. Suitable Certifire approved linear gap sealing systems may also be utilised to protect the frame / supporting construction gap, subject to the conditions contained within the relevant certificate
- Some manufacturers will give advice on the correct filling materials, methods and architrave detail because this is specific to the conditions that the door assembly or doorset was tested to. Checks should be made to ensure compatibility with the fitting scenario
- BS 8214:2016 ensures that the methods and materials used are correct. Always check the manufacturer' recommendations and suitability of filling materials.



When should backfilling of the gap happen?

Only once all dimensional and functionality checks of the door have taken place, should backfilling of any gaps between the back face of the frame and the wall be done. Intumescent material and intumescent mastic as specified in the installation instructions or the fire certificate data sheet should be used to fill any gaps, and only once this installation detail has been checked, architrave should be fitted.

Suitability of gap filling materials

Consideration of the fire rating (FD30 or FD60)

The gap filling materials and methods are different for FD30 and FD60 doors, always make checks to ensure that the correct materials and processes are used in accordance with the fire rating of the door that is installed. Suitable Certifire approved linear gap sealing systems may also be utilised to protect the frame / supporting construction gap, subject to the conditions contained within the relevant certificate.

Intumescent Mastic

Intumescent mastics are often used to provide a smoke seal behind the architrave.

Mastic may only be used if it is compatible with certification, approved linear gap joint seal, successfully tested in accordance with BS 476-20 or BS EN 1366-4 for the required period of fire resistance.

Always check the fire certificate of backfilling materials for compatibility and limitations that will affect performance.



Expanding foam is widely used on construction sites, however it is not always suitable for filling the gap between the frame and wall.

- Expanding foam can only be used if they are a compatible, approved linear gap joint seal, successfully tested in accordance with BS 476-20 or BS EN 1366-4. Always check the fire certificate of backfilling materials for compatibility and limitations that will affect performance
- Checks should be made to ensure compatible materials are used, dependent on the specific wall construction and the limitations on the gap size and requirement for additional mastic capping.



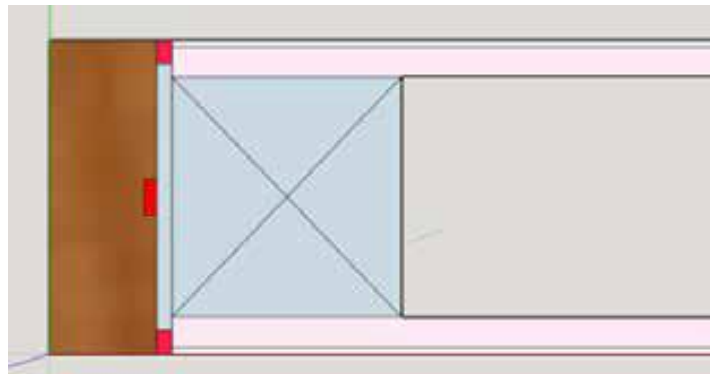
**Expanding Foam –
only appropriate in
LIMITED installation
scenarios**



Expanding seals

Mastic and expanding foam seals may only be used if they have been included within a fire test, between the door frame and surrounding structure, on a timber-based door assembly or doorset that has demonstrated a minimum of 30 min fire resistance in accordance with BS 476-22 or BS EN 1634-1.

Always check the fire certificate of backfilling materials for compatibility and limitations that will affect performance.



Architrave

- The architrave should only be fitted after checks have been made to the linear gap seal.
- Architrave can be contributory to fire performance and must be of the correct size and material compatible to the specific door assembly or door set and installation scenario
- Only use architrave that is the correct specification as detailed on the fire door certificate
- Occasionally doors are fitted with no architrave, refer to Annex A for compatible materials and gap limitations in this scenario
- Architraves should be mechanically fixed (either pins or screws) with a minimum penetration into the sub structure of 30 mm. Architraves should be fixed at 100 mm from the corners and then at centres of 250 mm unless otherwise specified by the manufacturer

Post-installation Checklist

Door leaf	
Free from damage	✓
Fitting plumb level and square in frame	✓
Consistent gap between door and frame (as specified on fire certificate)	✓
BWF-Certifire label/s on top of door undamaged	✓
Door frame	
Free from damage	✓
Suitable for the fire door rating	✓
Compatible with the door assembly or doorset	✓
BWF-Certifire label/s on top of door undamaged	✓
Correct number of, specification, size and location of frame to wall fixings	✓
Fire and Smoke seals	
Compatible with the door assembly or doorset	✓
Suitable for the fire door or smoke rating	✓
Intumescent seals are full length in door edge or frame	✓
Seals are flush in grooves	✓
Smoke seal fills the gap between the door and the frame on all sides	✓
Free from damage	✓
Compatible with the door assembly or doorset	✓
Latch or lock	
Suitable for fire door rating	✓
CE marked for fire performance	✓
Engages securely with the keep in the frame or lining	✓
Suitable for the fire door rating	✓
Compatible with the door assembly or doorset	✓
Fitted with correct intumescent pads if specified in the installation instructions	✓
BWF-Certifire label/s on top of door undamaged	✓
Hinges	
Fitted with correct intumescent pads if specified in installation instructions	✓
Fitted with the hinge manufacturers fixings that have been supplied and fire tested	✓
CE marked for fire performance where applicable	✓
Fitted with correct fixings (specification and length)	✓
All fixings in place	✓
Free from damage	✓
Suitable for the fire door rating	✓
Compatible with the door assembly or doorset	✓
Door closer (if required)	
Fitted with correct intumescent pads if specified in the installation instructions	✓
CE marked for fire performance where applicable	✓
Fitted with correct fixings (specification and length)	✓
All fixings in place	✓
Free from damage	✓
Suitable for the fire door rating	✓
Compatible with the door assembly or doorset	✓
Signage	
Check that the correct signage is in place and securely fixed to the door	✓
Other ironmongery	

CE marked for fire use on fire doors where applicable	✓
Fitted with correct intumescent pads if specified in the installation instructions	✓
Fitted with the ironmongery manufacturers fixings that have been supplied and fire tested	✓
Fitted with correct fixings (specification and length)	✓
All fixings in place	✓
All components free from damage	✓
Suitable for the fire door rating	✓
Compatible with the door assembly or doorset	✓
Vision panels or other apertures cut in the door leaf for ironmongery such as letter plates or air transfer grilles	
Check all ironmongery, glass, glazing beads, seals and intumescent materials are free from damage and secured to the door	✓
Check for the glazed aperture label at the top of the door to prove that the door is glazed with compliant materials and glazing systems by a trained door processor	✓
Site cutting of apertures and on-site glazing is not permitted	✓
Gap between the wall and the frame behind the architrave	
Suitable materials and intumescent materials and mastics have been used to fill any gap as detailed on the installation instructions or the fire certificate data sheet	✓
Gap	
Check gaps (top, sides, bottom, and centre) are correct to installation instructions	✓
Wall type	
Of suitable fire resistance for the fire door assembly or doorset rating	✓
Threshold seals	
When the door is closed the threshold, seal engages fully and across its entire length	✓
Handover of documentation to prove fire performance	
Check the Fire label/s are in place on the top of the door and/or the frame	✓
Installation instructions	✓
Maintenance instructions	✓
Refer to the CF / CAF number on the label	✓
Fire certificate (CF) if applicable	✓
Contact manufacturer if further information is required	✓
Fire label	
In place, correct, undamaged	✓

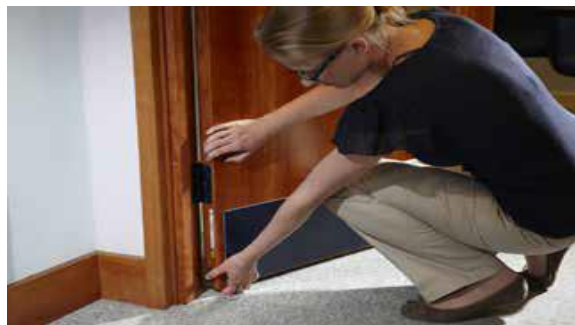
Section 7. Fire Door Inspection and Maintenance

Regular Inspection

Article 17 of the Fire Safety Order makes it a legal requirement to ensure that fire resisting doors and escape doors are correctly installed and adequately maintained in order for them to be fit for purpose.

The authorities have the power to enforce the Fire Safety Order and do prosecute or even close buildings down where breaches are discovered.

Building owners need 'competent persons' as referenced in the Fire Safety Order to help them comply with fire door regulations.



Inspection and Maintenance

Fire doors should be regularly inspected for damage that may prevent the door from performing in the event of a fire. This may form part of the risk assessment for the building.

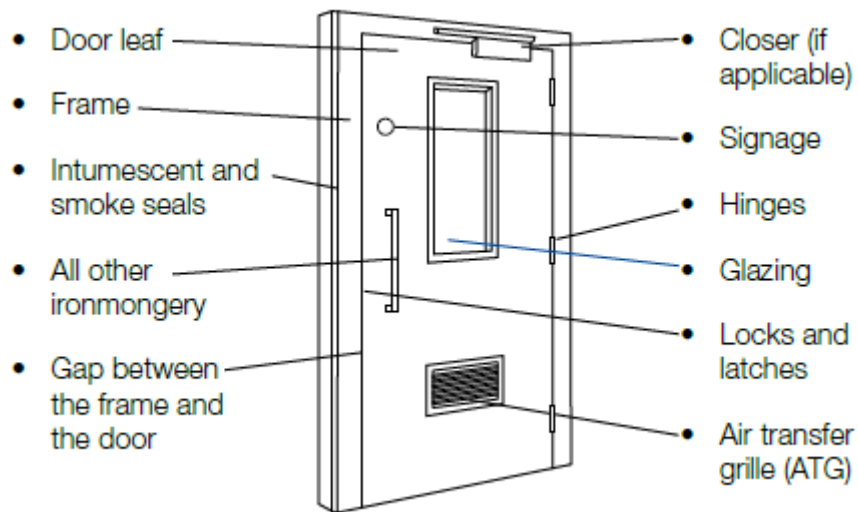


Any issues should be fixed as soon as possible using compatible, correct fire rated components. The selection of suitable components is supported by the fire certificate and door schedule.

To check compatibility of components, always check the fire certificate data sheet or contact the fire door manufacturer.

By not using compatible components as listed on the fire certificate, fire certification of the door will be invalidated.

All parts of the door assembly or doorset should be inspected by a competent person



Frequency of Inspection

Periodic checks should be carried out at least once every six months.

Newly occupied buildings may require more frequent checks in the first year of use.

Doors where traffic is high are likely to be more susceptible to damage and should be checked more frequently than other doors in the building. E.g. once per week/month (depending on usage).

Section 8. Sources of Further Information

How to measure the structural opening for a fire door assembly or doorset

Some fire door manufacturers will carry out a site survey to measure the opening in the wall and ensure that a correctly sized door and components are supplied.

However, if you are measuring the opening, the following list provides some points to consider.

Step 1: Measure the WIDTH of the aperture at the top, middle and bottom of the opening

Step 2: Measure the HEIGHT of the aperture on the left, middle and right-hand side of the frame.

Step 3: Measure the depth of the opening (the wall thickness) at different points around the frame.

Other considerations: Sometimes site measuring is undertaken when the build is part way through and not all of the elements that lead to accurate dimensioning will be obvious. If you are measuring the aperture, check for finished floor heights and wall thickness. This information will also be available from architectural drawings.

Measure twice, cut once

There is no harm in checking measurements twice, prior to ordering. It will pay off in the long run.

Fitting tolerances

Once you have measured the aperture, you should subtract at least 5 mm from the smallest width measurement and 5 mm from the smallest height measurement to give a fitting tolerance.

This dimension is known as the FINISHED FRAME SIZE.

It is important to allow fitting tolerance to ensure that the frame and door can be fitted squarely and level into the aperture without bending the components.

Non-square or uneven apertures

Sometimes an aperture can be uneven and measure differently. The aperture size that you specify must be the SMALLEST measurement that is taken.

You MUST NOT cut material away from the fire door frame to make it fit.

Contact Information

BWF-Certifire: British Woodworking Federation Fire Door Scheme: www.bwfcertifire.org.uk

Warrington Certification: www.warringtoncertification.com/certifire.html

Fire Door Scheme Inspection: www.fdis.co.uk

Fire Door Safety Week: www.firedoorsafetyweek.co.uk

Fire door installers register: www.firedoorinstaller.co.uk

Publications

BWF-Certifire Fact cards: www.bwfcertifire.org.uk/publications/fact-cards

BWF-Certifire Scheme Directory: www.bwfcertifire.org.uk/assets/fd-scheme-directory_april15.pdf

BWF-Certifire – The Burning Issues: http://www.bwfcertifire.org.uk/assets/fire_door_guide.pdf

Guild of Architectural Ironmongers (GAI): Code of Practice. Hardware for fire and escape doors: www.firecode.org.uk/

Downloadable checklists

BWF-Certifire have produced a series of template checklists that can be downloaded and downloaded for user's particular need: www.bwfcertifire.org.uk

- Regulation 38
- Pre-installation
- Post installation
- Inspection and Maintenance
- Developers Checklist
- Merchant Checklist
- Builders Checklist

Gap Testers

BWF-Certifire Gap testers are available by contacting the British Woodworking Federation



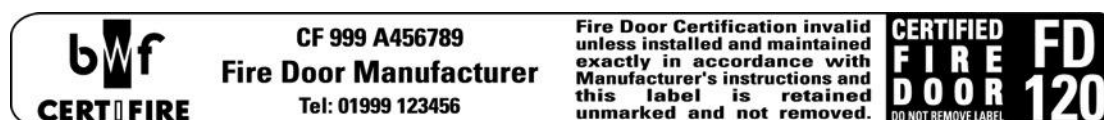
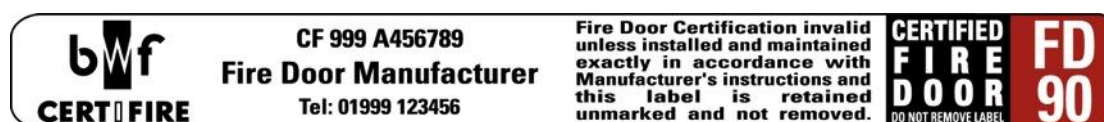
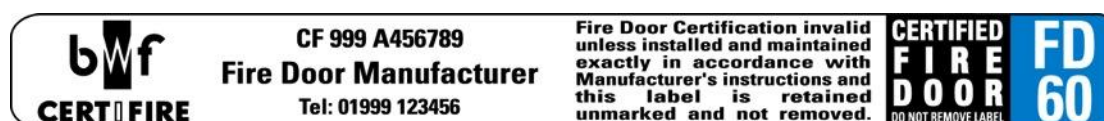
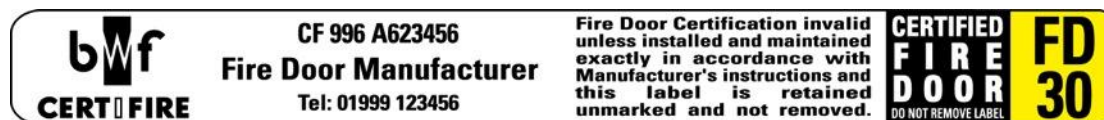
The Best Practice Guide can now be downloaded from: www.bwfcertifire.org.uk



BWF-Certifire Fire Door Labeling details 2018

Labels are positioned on the top edge of the door, close to the locking stile (if known), allowing for intumescent seals. *(Refer to table E1 in this section)*

A1 - Labels used by Prime Door Manufacturers



A2 - Label used by Prime Door Manufacturers for factory-glazed door leaves



Where glazed doors are supplied from the factory, an additional label is also required to demonstrate it has been correctly glazed. All doors requiring vision panels must be factory glazed by the manufacturer or glazed by a BWF Certifire Scheme Licensed Converter

B - Labels used by Door Processors

	CAF 000 A123456 Company Name Tel: 01999 987654	This Certified Glazed Aperture has been produced in accordance with the fire door leaf Manufacturer's instructions. It conforms to the fire door rating shown on their accompanying BWF-CERTIFIRE label.	CERTIFIED GLAZED APERTURE IX DO NOT REMOVE LABEL
	CAF 000 C345678 Company Name Tel: 01999 987654	This Certified Fire Door Frame must be used in conjunction with a BWF-CERTIFIRE fire door leaf and installed & maintained in accordance with the Manufacturer's instructions.	CERTIFIED FIRE DOOR FRAME VII DO NOT REMOVE LABEL

C-Labels used by companies licensed to produce the BWF Certifire Approved universal door frame / lining / casing

	Company Name Tel: 01990 123456 For use on BWF-CERTIFIRE approved fire door assemblies only	Fire Door Certification invalid unless installed and maintained exactly in accordance with Manufacturer's instructions and this label is retained unmarked and not removed.	STANDARD FIRE DOOR LINING DO NOT REMOVE LABEL FD 30
	Company Name Tel: 01990 123456 For use on BWF-CERTIFIRE approved fire door assemblies only	Fire Door Certification invalid unless installed and maintained exactly in accordance with Manufacturer's instructions and this label is retained unmarked and not removed.	STANDARD FIRE DOOR CASING DO NOT REMOVE LABEL FD 30
	Company Name Tel: 01990 123456 For use on BWF-CERTIFIRE approved fire door assemblies only	Fire Door Certification invalid unless installed and maintained exactly in accordance with Manufacturer's instructions and this label is retained unmarked and not removed.	STANDARD FIRE DOOR FRAME DO NOT REMOVE LABEL FD 30

E - Label for doors made from processed blank

	CF NNN Pacific Rim Wood Ltd Flamebreak	This label shows the type of fire door blank from which this door has been processed. NOT VALID UNLESS ACCOMPANIED BY A CERTIFIED FIRE DOOR BLANK LABEL	FIRE DOOR BLANK FD 30
	CF NNN Pacific Rim Wood Ltd Flamebreak	This label shows the type of fire door blank from which this door has been processed. NOT VALID UNLESS ACCOMPANIED BY A CERTIFIED FIRE DOOR BLANK LABEL	FIRE DOOR BLANK FD 60
	CAF 000 UB 123456 Company Name Tel: 01999 987654	This door has been processed from a certified fire door blank in accordance with the manufacturer's instructions. NOT VALID UNLESS ACCOMPANIED BY A FIRE DOOR BLANK LABEL	CERTIFIED GLAZED FIRE DOOR BLANK DO NOT REMOVE LABEL
	CAF 000 UB 123456 Company Name Tel: 01999 987654	This door has been processed from a certified fire door blank in accordance with the manufacturer's instructions. NOT VALID UNLESS ACCOMPANIED BY A FIRE DOOR BLANK LABEL	CERTIFIED GLAZED FIRE DOOR BLANK DO NOT REMOVE LABEL

Example of label showing CAF + Label denoting blank used by processor

A separate label is also required when door is glazed

Table E1 : Fixing positions for BWF Certifire Scheme labels.

Type of label		Prime Door Manufacturer	Licensed Converter	Location of label
A Certified Fire Door	30 mins 60 mins 90 mins 120 mins	A1 As listed on CF certificate	Not Applicable	The top edge of the door, close to the locking stile if known, otherwise centrally
B Certified glazed aperture Certified glass opening	30 mins	A2 Additional label for glazed apertures as per CF certificate	B As listed on CAF certificate	The top edge of the door, adjacent to the manufacturer's label (above)
C Certified fire door frame	30 mins	C As listed on CF certificate	B As listed on CAF certificate	Centrally, on the rebate platform of the head of the frame
C Standard fire door frame Standard fire door lining Standard fire door casing	30 mins	C As listed on CF certificate	C As listed on CAF certificate	Centrally, on the rebate platform of the head of the frame
D Certified fire door kit Certified fire doorset	30 mins 60 mins 90 mins 120 mins	D As listed on CF certificate	D As listed on CAF certificate	In the rebate platform of the hanging jamb, above the top hinge.
E Certified fire door / doorset processed from door blank	30 mins 60 mins	Not Applicable	As listed on CAF Certificate - Blank label E + Additional label for glazed apertures as shown in E	The top edge of the door, close to the locking stile if known, otherwise centrally

Q-Mark Fire Door Plugging Details – March 2018

Plug Definitions



Outer colour: Period of fire integrity resistance

Inner tree colour: Status of manufacture of leaf, frame, doorset

	Yellow Outer	30 minute fire integrity period (FD 30). Used for either partial or complete doorsets
	Blue Outer	60 minute fire integrity period (FD 60). Used for either partial or complete doorsets
	Brown Outer	90 minute fire integrity period (FD 90). Used for complete doorsets only
	Black Outer	120 minute fire integrity period (FD 120). Used for complete doorsets only

Plug Locations

- The preference is for plugs to be fitted just below top hinge at around eye level.
- When only one plug is required, it will normally be fitted to the door leaf but may also be fitted to the frame if desired.
- It is advised that plugs are fitted down the centre line of leaf or the centre of the frame rebate.
- Plugs can be fitted through intumescent seals if required.

Plug Requirements

Door Leaf or Door Frame	
 (Red)	Fitted within the appropriate outer plug to a door leaf or door frame to identify that it is a Q-Mark approved door leaf or door frame. The leaf and frame could come from different Q-Mark certified fire door manufacturers. The door leaf or door frame will not be in a finished state. It may not be fully prepared for the required intumescent strips or hardware. Therefore, further work is needed to be carried out before the door leaf assembly is ready to be hung into a door frame. Clear instructions for further processing and installation of the door assembly must be supplied by the Q-Mark certified fire door manufacturer relating to a specific Initial Type test or Global Assessment within their scope of certification.
 (Green)	Fitted within the appropriate outer plug to a door leaf or door frame to identify that it is a Q-Mark approved door leaf or door frame. The leaf and frame could come from different Q-Mark certified fire door manufacturers. The door leaf or door frame may not be in a finished state. It must be fully prepared for all the required intumescent strips around the perimeter gap, which can be either fitted or supplied loose but must be supplied. If the intumescent strips are supplied loose, they must be clearly identified to the appropriate door leaf or frame to which they will be fitted. The door leaf or frame might not be fully prepared for all of the appropriate hardware, in which case it must be clearly specified which hardware and any required associated intumescent protection is to be finally fitted at a later date by others. Clear instructions for the further processing and installation of the door assembly must be supplied by the Q-Mark certified fire door manufacturer relating to a specific Initial Type test or Global Assessment within their scope of certification.
 (Orange)	Fitted within the appropriate outer plug to a door leaf only if glazing is in the door leaf, this plug is in addition to all other required plugs, to identify that glazing has been specified and fitted to the door leaf by a Q-Mark certified fire door manufacturer as per the same Initial Type Test or Global Assessment used to manufacture the door leaf. If glazing is included within a sidelight or fanlight (not within the door leaf), then the glazing system may be finally fitted on site, in which case clear installation instructions must be provided by the Q-Mark certified fire door manufacturer relating to a

	specific initial Type Test or Global Assessment within their scope of certification.
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Complete Doorset

 (Silver)	Fitted within the appropriate outer plug to a door leaf and/or door frame to identify that it is a Q-mark certified (factory hung) doorset. There will be no further preparation work carried out to either the leaf or frame before it can be fitted into the building. It is permissible for hardware such as locks, hinges or door closers etc. to be finally fitted during the installation process, but the preparations to accept the hardware will have been completed by the Q-Mark certified fire door manufacturer. The hardware along with the supply of any required intumescent protection materials must be supplied by the Q-Mark certified fire door manufacturer. Clear instructions for further processing and installation of the doorset must be supplied by the Q-Mark certified fire door manufacturer relating to a specific Initial Type Test or Global Assessment within their scope of certification. The final assembly and installation of the doorset should be able to be completed with simple tools only, such as a screwdriver. No further preparations are allowed to be completed by the installer other than appropriate pilot holes for screws etc.
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Q-Mark Fire Door Installation

 (Gold)	Fitted within the appropriate outer plug to a door leaf to demonstrate that the doorset has been installed under the supervision of a Q-Mark Approved Installer. This is in addition to all other plugs previously fitted to the doorset. This gold plug MUST ONLY be fitted in the following situations: - To a Q-Mark certified (factory hung) fire doorset, identified as such by having a silver tree plug fitted to the door leaf. - To a Q-Mark certified fire doorset (only if purchased as a leaf and frame combination), identified as such by having a green tree plug fitted to the door leaf providing that the hardware and associated protection has been prepared and fitted strictly in accordance with the doorset manufacturer's assembly & fitting instructions for that doorset. <i>(This plug cannot be fitted if the installer is replacing a door leaf only within an existing door frame as there will be uncertainty of the frame compatibility)</i> If the door leaf has glazing fitted but an orange tree plug has not been fitted to the door leaf, or if sidelight/fanlight glazing is present but not all component parts/full installation instruction were supplied then regardless of any other plugs fitted, the doorset cannot be confirmed as Q-Mark certified and the gold tree installation plug cannot be fitted. Note: It is mandatory to fit a gold installation plug when the doorset is identified as being a complete Q-Mark approved doorset. It is not acceptable to just affix a gold installation label.
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Q-Mark Fire Door Plug identification and traceability

	The number printed in the centre of the tree for all colours is the identification number for a Q-Mark certified fire door manufacturing company or Q-Mark certified installation company. This maintains traceability for which company was responsible for completing each part of the doorset manufacture, assembly and installation process.
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Non- Q-Mark manufactured doorsets

Where the doorset being installed has not been manufactured by a company certified under the Q-Mark Fire Door scheme the doorset cannot be fitted with Q-Mark plugs or marked with a label that reproduces the design of the Q-Mark plug. In this situation the Q-Mark **gold** Fire Door Installer plug cannot be fitted.

Q-Mark Fire Door Installer – Non Q-Mark doorset Label options

	The gold fire door installation label can be fitted to any fire door leaf, frame or complete doorset to signify that the installation has been conducted by a Q-Mark certified fire
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	door installation company. The installed door assembly does not have to be a certified doorset under the Q-Mark fire door manufacture scheme. Note: It is mandatory to fit a gold installation label whenever the door leaf, door frame or doorset is listed on the Record of Installation Activities form where a gold installation plug cannot be fitted. However, when a Q-Mark approved doorset has been installed, it is acceptable to fit a gold installation label in addition to the gold installation plug if required.
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Annex A: Mapping the Course to the National/Scottish Vocational Qualification Unit (N/SVQ)

Title:		Installing fire resisting timber door assemblies and doorsets in the workplace	
Learning outcomes <i>The learner will be able to:</i>		Assessment criteria <i>The learner can:</i>	
1 Interpret the given information relating to the work and resources when installing fire resisting timber door assemblies and doorsets. Maps to Course Content: (1.1, 1.2, 1.4) Section 4: Fire Door Regulations (1.1, 1.2, 1.3, 1.4) Section 6: Fire Door Installation		1.1	Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, fire performance documentation/certification and manufacturers' information.
		1.2	Comply with information and/or instructions derived from risk assessments and method statements.
		1.3	Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
		1.4	Describe different types of information, their source and how they are interpreted in relation to: drawings, specifications, schedules, method statements risk assessments, work instructions, fire performance documentation/certification, manufacturers' information, official guidance, current regulations governing buildings, Codes of Practice and guidance documents.
2 Know how to comply with relevant legislation and official guidance when installing fire resisting timber door assemblies and doorsets. Maps to Course Content: N/A Approved Prior Learning (APL) (AC's achieved in site carpentry units previously gained)		2.1	Describe their responsibilities regarding potential accidents, health hazards and the environment, whilst working: in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
		2.2	Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
		2.3	Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when installing fire resisting timber door assemblies and doorsets. Maps to Course Content: N/A Approved Prior Learning (APL) (AC's achieved in site carpentry units previously gained)		3.1	Use health and safety control equipment safely and comply with the methods of work to carry out the activity in accordance with current legislation and organisational requirements when installing fire resisting timber doorsets.
		3.2	Demonstrate compliance with given information and relevant legislation when installing fire resisting timber door assemblies and doorsets. in relation to the following: - safe use of access equipment/working platforms - safe use, storage and handling of materials, tools and equipment - specific risks to health.
		3.3	Explain why and when health and safety control equipment, identified by the principles of prevention should be used, relating to installing fire resisting timber doorsets, and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: - collective protective measures - personal protective equipment (PPE) - respiratory protective equipment (RPE) - local exhaust ventilation (LEV)

	3.4	Describe how the relevant health and safety control equipment should be used in accordance with the given working instructions.
	3.5	Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related activities.
4 Select the required quantity and quality of resources for the methods of work to install fire resisting timber door assemblies and doorsets. Maps to Course Content: (4.2, 4.3, 4.5) Section 3: An Introduction to Fire Doors (4.1, 4.2, 4.3, 4.4, 4.5, 4.7) Section 6: Fire Door Installation (4.6) Approved Prior Learning (APL) (AC's achieved in site carpentry units previously gained)	4.1	Select resources associated with own work in relation to materials, components, fixings, tools and equipment.
	4.2	Describe the characteristics, quality, uses, limitations and defects associated with the resources in relation to: – manufacturer's installation instructions – fire doors – fire door frames – fixings, ironmongery and furniture – intumescent seals and cold smoke seals – hand tools, portable power tools and equipment.
	4.3	Describe how to check that all the correct materials and components conform to the fire performance documentation/certificates.
	4.4	Describe how the resources should be used correctly, how problems associated with the resources are reported.
	4.5	Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.6	Describe any potential hazards associated with the resources and methods of work.
	4.7	Describe how to calculate quantity, length, area and wastage associated with the method/procedure to install fire resisting timber door assemblies and doorsets.
5 Minimise the risk of damage to the work and surrounding area when installing fire resisting timber door assemblies and doorsets. Mapped to Course Content (5.1, 5.4) Section 6: Fire Door Installation (5.2, 5.3, 5.5) Approved Prior Learning (APL) (AC's achieved in site carpentry units previously gained)	5.1	Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2	Maintain a clean work space.
	5.3	Dispose of waste in accordance with current legislation.
	5.4	Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5	Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when installing fire resisting timber door assemblies and doorsets. Mapped to Course Content N/A Approved Prior Learning (APL)	6.1	Demonstrate completion of the work within the allocated time.
	6.2	Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.

(AC's achieved in site carpentry units previously gained)	
7 Comply with the given contract information to install fire resisting timber door assemblies and doorsets. to the required specification. Mapped to Course Content (7.6) Section 3: Introduction to Fire Doors (7.1, 7.2, 7.3, 7.4, 7.5) Section 6: Fire Door Installation (7.7, 7.8) Approved Prior Learning (APL) (AC's achieved in site carpentry units previously gained)	7.1 Demonstrate the following work skills when installing fire resisting timber doorsets: – measuring, marking out, drilling, fixing, sealing, cutting, fitting, finishing, positioning and securing.
	7.2 Use and maintain hand tools, portable power tools and ancillary equipment.
	7.3 Prepare and install fire resisting timber door assemblies and door sets to given working instructions and to specification.
	7.4 Describe how to apply safe work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – ensure compliance with fire performance documentation/certification – ensure no alterations have been carried out which may affect the fire certification of the door – ensure surrounding construction is to specification – check all component parts are undamaged – install doorframes to specification with defined fixings and seals – install intumescent protection into void, (wall and frame) as per specification – install door-leaves to specification with defined fixings and seals – install cold smoke seals according to specification – install intumescent seals to specification – confirm specified intumescent protection is fitted to ironmongery/furniture – fit specified ironmongery/furniture ensuring the use of a compliant fixing regime – recognise and determine when specialist skills and knowledge are required and report accordingly – work with, around and in close proximity to plant and machinery – use hand tools, portable power tools and equipment – use access equipment.
	7.5 Describe the fire resisting requirements when installing fire resisting timber doorsets.
	7.6 Describe the implications of incorrect installation.
	7.7 Describe the needs of other occupations and how to communicate effectively within a team when installing fire resisting timber doorsets.
	7.8 Describe how to maintain the tools and equipment used when installing fire resisting timber doorsets.

Annex B: Lesson Plan (Suggested)

Day 1

Timings	Learning Subject/Activity	Resources/Activities
Session 1 (08.30-10.30)	• Section 1: Course introduction • Section 2: Course aims and objectives • Section 3: Introduction to fire doors	• Course handbook • PowerPoint • Component quiz
A.M Short Break		
Session 2 (10.45-12.30)	• Section 4: Building Regulations • Section 5: Fire door design and specification	• Course handbook • PowerPoint
Lunch Break		
Session 3 (13.30-15.00)	• Section 6: Fire door installation	• Course handbook • PowerPoint
P.M Short Break		
Session 4 (15.15-17.00)	• Workshop Practical Activity	• Preparing and fitting the frame

Day 2

Timings	Learning Subject/Activity	Resources
Session 1 (08.30-10.30)	• Section 6: Fire door installation	• Course handbook • PowerPoint
Short Break		
Session 2 (10.45-12.30)	• Workshop Practical activity	• Preparing and installing the door leaf
Lunch Break		
Session 3 (13.30-15.00)	• Section 7: Fire door inspection and maintenance • Section 8: Sources of further information • Workshop practical activity/assessment	• Course handbook • PowerPoint • Preparing and installing the door leaf • Fitting the door closer
Short Break		
Session 4 (15.15-17.00)	• Workshop practical activity/assessment	• Inspection and maintenance
17.00	Close	

Annex C: NVQ/SVQ Achievement Process

TO BE COMPLETED BY ROY (BWF TO SIGN OFF)