



Fire Doors: Safe, Not Sorry

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- I have been in the construction industry for over 40 years
- I have been a Fire Safety Consultant pre FSO (2005)
- Post Graduate Diploma in Construction Management
- IFE Approved Fire Risk Assessor and Auditor
- Fellow of the Chartered Association of Building Engineers
- Certified competent in Fire Detection BS5839 Part 1
- Certified competent in Fire Detection BS5839 Part 6
- Certified competent in Emergency Lighting Design BS5266
- Certified Fire Door Installer and Auditor (BM TRADA – Q-Mark)
- Certified member of Fire Door Maintenance Scheme (BM TRADA – Q-Mark)

Am I Considered Competent?

What did I Tell You About Me?

FFT



HM Government

ONLINE VERSION

The Building Regulations 2010

Fire safety

APPROVED DOCUMENT

B

VOLUME 2 – BUILDINGS OTHER THAN DWELLINGHOUSES

- B1 Means of warning and escape
- B2 Internal fire spread (linings)
- B3 Internal fire spread (structure)
- B4 External fire spread
- B5 Access and facilities for the fire service

Came into effect April 2007



For use in England*

ONLINE VERSION

2006 edition
incorporating 2007,
2010 and 2013
amendments

General

- a. **Approved Document B:** The Approved Document has been split into two volumes. Volume 1 deals with dwellinghouses, Volume 2 deals with buildings other than dwellinghouses.
- b. **Fire Safety Information:** A new Regulation 38 has been introduced to ensure that sufficient information is recorded to assist the eventual owner/occupier/employer to meet their statutory duties under the Regulatory Reform (Fire Safety) Order 2005.

Because of the document on the left and in particular, the main changes to the 2013 amendments.

INTERACTION WITH OTHER LEGISLATION

The Regulatory Reform (Fire Safety) Order 2005

The Fire Safety Order reforms the law relating to fire safety in non-domestic premises. Specifically it replaces the Fire Precautions (Workplace) Regulations 1997 and the Fire Precautions Act 1971. It imposes a general duty to take such fire precautions as may be reasonably required to ensure that premises are safe for the occupants and those in the immediate vicinity.

By virtue of the Order, the responsible person is required to carry out a fire risk assessment of their premises. This must be a suitable and sufficient assessment of the risks to which relevant persons are exposed for the purpose of identifying the general fire precautions they need to take to comply with the requirements under the Order.

Another Important Document



STATUTORY INSTRUMENTS

2005 No. 1541

REGULATORY REFORM, ENGLAND AND WALES

The Regulatory Reform (Fire Safety) Order 2005

7th June 2005

- The Regulatory Reform (Fire Safety) Order 2005 is not just about the Fire Risk Assessment.
- This document is the one that explains what your duties are as a 'Responsible Person' and then tells you what will happen to you if you do not carry out these duties.
- This is the document that is used to prosecute 'Responsible Persons' and 'Competent Persons'.
- It is recommended that you become familiar with this document and its contents.

Specific Contents

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Part 1 Section 3 - Meaning of “Responsible Person” (FSO)

In this Order ‘Responsible Person’ means:-

- (a) in relation to a workplace, the employer, if the workplace is to any extent under his control
- (b) in relation to any premises not falling within paragraph (a):-
 - (i) the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by him of a trade, business or other undertaking (for profit or not); or
 - (ii) the owner, where the person in control of the premises does not have control in connection with the carrying on by that person if a trade, business or other undertaking.

Part 2 Section 18 - Safety Assistance

(1) The responsible person must, subject to paragraphs (6) and (7), appoint one or more competent persons to assist him in undertaking the preventive and protective measures.

(5) A person is to be regarded as competent for the purposes of this article where he has sufficient training and experience or knowledge and other qualities to enable him properly to assist in undertaking the preventive and protective measures.

(8) Where there is a competent person in the responsible person’s employment, that person must be appointed for the purposes of paragraph (1) in preference to a competent person not in his employment.

Define a 'Competent Person'

- Capable
 - Knowledgeable
 - Experienced
 - Skilled
 - Proficient
 - Expert
-
- Has demonstrated to a certification body running a UKAS accredited 'Competent Persons' scheme to EN ISO 17024:2012 (Personnel Certification)
 - Will work for a company operating a company based 'Competent Person' scheme certificated against BS EN 17065:2012 by a certification body accredited by UKAS

Building Regulations Approved Document B Vol 2- 2006 edition including 2010 and 2013 amendments

In the case of new buildings, or those which include alterations, extensions or change of use, the appropriate Building Regulations apply.

- Existing buildings, other than domestic properties, are governed by the requirements of the Regulatory Reform (Fire Safety) Order: 2005 – otherwise known as the RRO or FSO
- You should also take note of **Regulation 38** of the Building Regulations (England and Wales) which links the Building Regulations to the RRO for those buildings to which the RRO applies.

Regulation 38 Requirements

- The 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 test.
- Details of hinges, closers and other essential building hardware (CE marked)and how that relates to the fire door test.
- Maintenance information for each component, including the door leaf.
- Frequency of inspection and maintenance, depending on expected usage of the door.

When is a Fire Door Not a Fire Door?



- A fire door has two main functions.
 - When closed they are a barrier to hold back fire and smoke
 - When open they provide a means of escape
- All doors will hold back smoke and flames for a period of time.
- Certified fire doors are manufactured to provide a minimum protection commonly FD30s and FD60s
- BS 476-22:1987 or BS EN 1634-1:2014. Tests are made on complete fire door sets: ie. the fire door and door frame with all the requisite hardware (e.g. locks, latches, hinges, etc). A doorset may be called fire resisting if the complete design has been subjected to a full scale fire resistance test to one of the current test standards for non-loadbearing elements

When is a Fire Door Not a Fire Door?



Ways of demonstrating fire door performance

Self-declaration

Where a manufacturer makes their own claim of conformity by stating that the door, doorset or door component ‘complies with’ or is ‘designed to’ or ‘tested to’ a certain standard.

Test certificate

A test certificate tells the purchaser that a company’s products have been tested and they have a certificate to prove it.

Third-party certification

Third-party certification tests and verifies a fire door’s design, performance, manufacturing process and quality assurance from manufacture to installation. Company independently audited.

Fire Door Test – Obvious Fail

FFT



When is a Fire Door Not a Fire Door?



When is a Fire Door Not a Fire Door?



When is a Fire Door Not a Fire Door?



- Fire Door Certificate will show that the door has passed a Fire Test.
- Includes ironmongery and installation.

When is a Fire Door Not a Fire Door?

5. Installation

The opening may be lined with softwood which shall be continuous and of minimum width, 85mm. Each door frame jamb to be fixed through to the wall at not less than four points with steel or nylon fixings at maximum 600 mm centres penetrating the wall to at least 50 mm. Architraves are optional with no restrictions on material, size or fixing. Doorsets shall be installed as stated in BS 8214 : 1990, Table 2.

Door leaves may be trimmed to fit the frame by the following maximum amounts:

Stiles (each): 3 mm

Top: no limit providing lippings are not fitted, 3 mm if lippings are fitted
(note: care must be taken when trimming the top of the leaf to ensure that the CERTIFIRE label is not removed or damaged)

Bottom: no limit providing lippings are not fitted, 3 mm if lippings are fitted

Doors may be fitted with lippings up to 25mm thick. Where thicker (greater than 6mm) lippings are fitted, leaves may be trimmed on the lipped edges to leave a minimum of 3mm.

Note that the maximum door to frame and door to threshold gaps specified shall not be exceeded. The door edge fitted with the BWF-CERTIFIRE label may only be trimmed in such a way that the CERTIFIRE label remains in place and intact since removal of the label will invalidate the certification. Care must also be taken to ensure glazed aperture margins (100 mm between apertures and leaf edge) are maintained.

Door to frame gaps: Not to exceed 4 mm except at threshold where up to 10 mm is permitted. Meeting stile gap not to exceed 3.5 mm

6. Glazed Apertures

All apertures to be factory prepared by Premdor Crosby Limited. **No site cutting of apertures permitted.**

The leaf/leaves may incorporate CERTIFIRE approved glazing systems subject to the conditions contained within the relevant certificate and the maximum pane dimensions given below (whichever is smaller):

The maximum size and maximum total area of glazing per leaf is 1800 mm high and 812 mm wide (subject to a maximum area of 1.34 m²).

Separation: 100 mm between apertures and leaf edge, 80 mm between apertures

Number of apertures: Any number of apertures may be included providing the maximum area constraints and the minimum separation requirements are satisfied. In double-leaf doorsets, each leaf must be similarly glazed.

The following glazing configurations are approved for double-leaf doorsets:

- Equal glazing in both leaves
- Both leaves unglazed
- One leaf glazed, one leaf unglazed
- Each leaf to have unequal glazing (different dimensions and/or area)

- Fire Door Certificate will show that the door has passed a Fire Test.
- Includes ironmongery, glazing and installation.

When is a Fire Door Not a Fire Door?

3. Door Frame

To be any of the following:-

Softwood or Hardwood

- i) Density: 450 kg/m³ minimum.
- ii) Dimensions: 70 mm by 28 mm minimum.
- iii) Door Stop: any size - pinned, screwed, tongue and grooved or rebated from solid

Medium Density Fibreboard

- i) Density: 700 kg/m³ min.
- ii) Dimensions: 70 mm by 28 mm min.
- iii) Door Stop: any size -deep pinned, screwed, tongue and grooved or rebated from solid

Jointing:

Butt joints, mortice and tenon, mitred or half lapped joints with the head screw fixed to the jambs using two steel screws

Door to frame gaps:

Not to exceed 4 mm except at threshold where up to 8 mm is permitted and 3.5 mm at the meeting stiles of double-leaf doorssets

Alternative Framing - Speed Set Framing System

The 'Speed Set' system comprises sixteen polypropylene clips, eight on one face and eight on the opposite face of an MDF door frame. The frame is screw fixed via the clips into the face of the supporting construction. The clips are masked with MDF architraves. The gap between the door frame and the supporting wall must be tightly packed to full depth with mineral fibre.

Frame dimensions to be a minimum of 70 mm by 25 mm.

4. Supporting Construction

The door assemblies are approved to be installed in brick, block, masonry, or timber stud of minimum thickness 70 mm, providing at least 30 minutes fire resistance.

The steel studs supporting the door frame must have adequate timber bracing to ensure that they are stable in a fire. The wall system manufacturer must be consulted for advice on this. Failing this the steel studs that support the hinges and latch legs of the door frame must be braced floor to ceiling with timber at least 38mm thick by the width of the steel stud. The timber bracing must be firmly fixed to the floor and ceiling and the door frame must be firmly fixed to this timber bracing at at least 4 points on each leg of the frame with steel fixings at a maximum 600mm centres.

- Fire Door Certificate will show the frame specification.
- If not a doorsset then frame should comply with specification

When is a Fire Door Not a Fire Door?

Seals may be fitted into door leaf or frame unless specifically stated otherwise

Note: Alternative seals may be utilised in-line with the relevant CERTIFIRE approval for the proposed intumescent seal. All seals to be CERTIFIRE approved (to Technical Schedule 35).

For sizes of other CERTIFIRE approval seals, refer to the relevant CERTIFIRE approval. All dimensions including PVC sheaf within nominal dimensions.

8. Hinges

~~CE~~ Hinges shall be CE marked for use on fire resisting timber doors, in addition to the specifications below:

Number:	3 hinges per leaf
Type:	Steel, Phosphor bronze or brass butt, journal supported and fixed pin. Any washers or ball bearings to be of phosphor bronze or steel.
Positions:	Upper Hinge: 200 mm (-0mm/+50 mm) from top edge of leaf Bottom Hinge: 200 mm (-50mm/+75mm) from bottom edge of leaf Middle Hinge: may be positioned at any position from mid-height of door to a minimum of 200 mm from top hinge position
Dimensions:	i) Blade height: 100 mm (+20 - 10 mm) ii) Blade width: 35 mm (\pm 3 mm) iii) Blade thickness: 3 mm (\pm 0.5 mm) iv) Knuckle dia.: 13 mm (\pm 1 mm)
Fixings:	4 No. steel screws (min.) no smaller than No.8 by 32 mm long

~~Speedset/Doorkit Hinge Specifications~~

Doorsets may be fitted with hinges, CE marked for use on fire resisting timber doors with the following specification:

Number:	3 hinges per door
Type:	Steel construction, fixed pin.
Position:	200mm (+/- 50mm) from top and bottom of door and mid-height (measured from centre line of hinge)
Dimensions:	Blade height, frame blade 65mm +/- 2mm – door blade 55mm +/- 2mm Blade width, frame blade 32mm+/- 2mm – door blade 43mm +/- 2mm Blade thickness, frame blade 3mm +/- 0.5mm – door blade 2.5mm to 6.5mm Knuckle diameter 12.5mm +/- 1mm

Fixings: 3 screws per blade (min) no smaller than 4mmx40mm into door leaf and 4mm x 25mm into frame.

Door Frame : minimum MDF door frame thickness to be 18 mm for all door options

Intumescent protection is not required behind hinge blades for any hinge option.

Any other CERTIFIRE approved hinges subject to the conditions contained within the relevant certificate.

- Fire Door Certificate will show ironmongery specification
- If repairs are required then these must be as specification



How can you Identify a Fire Door?

How to Identify:

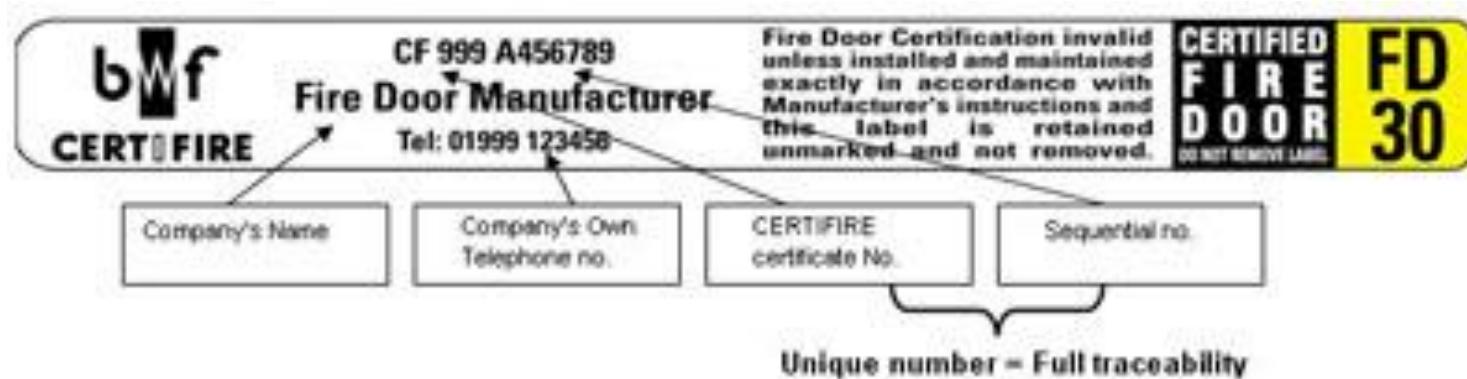


Doors can be plugged if BM TRADA Q Mark.

How can you Identify a Fire Door?



How to Identify:



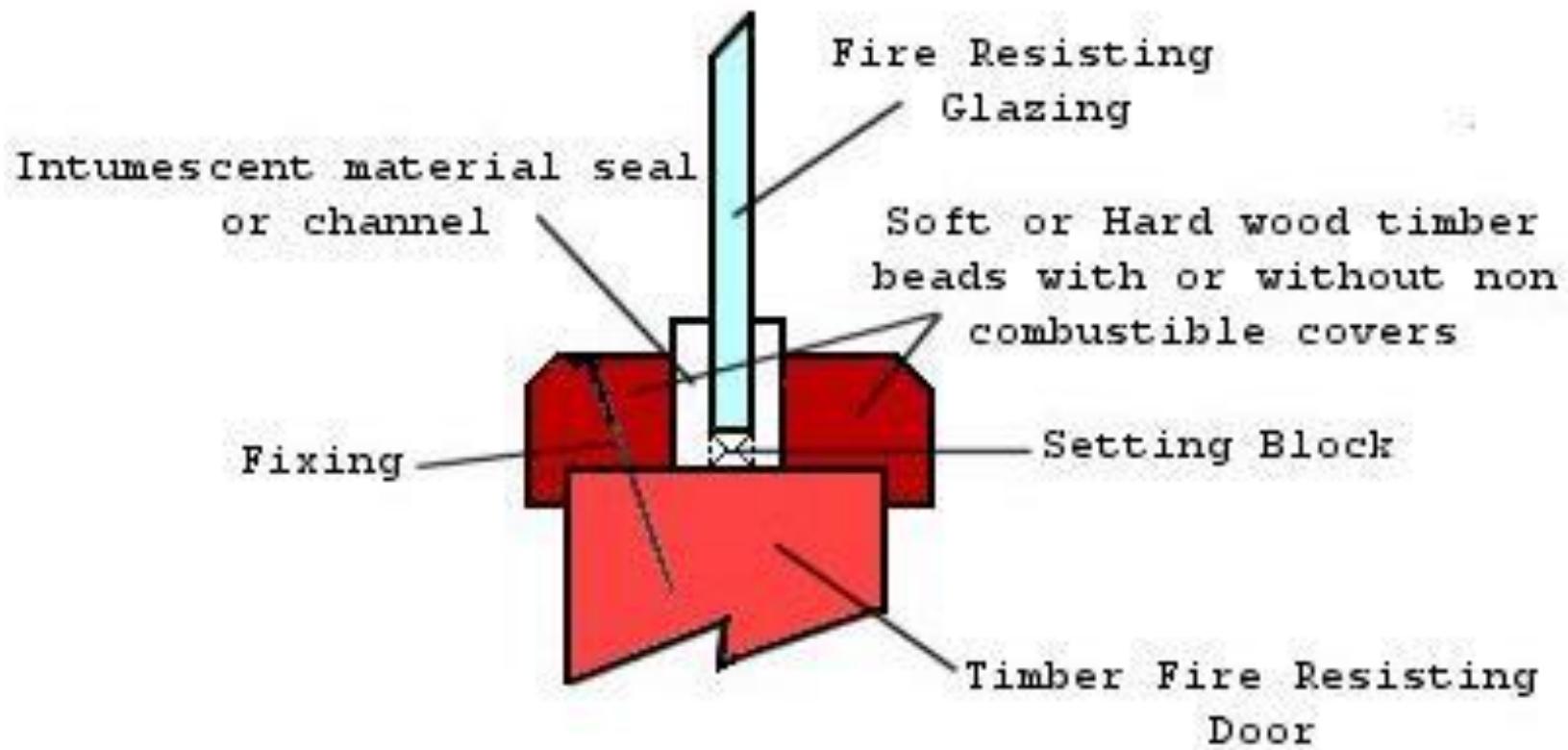
Doors have label on top edge if BWF Certifire.



Manufacturers Declaration ('Flamebreak')

How can you Identify a Fire Door?

How to Identify:

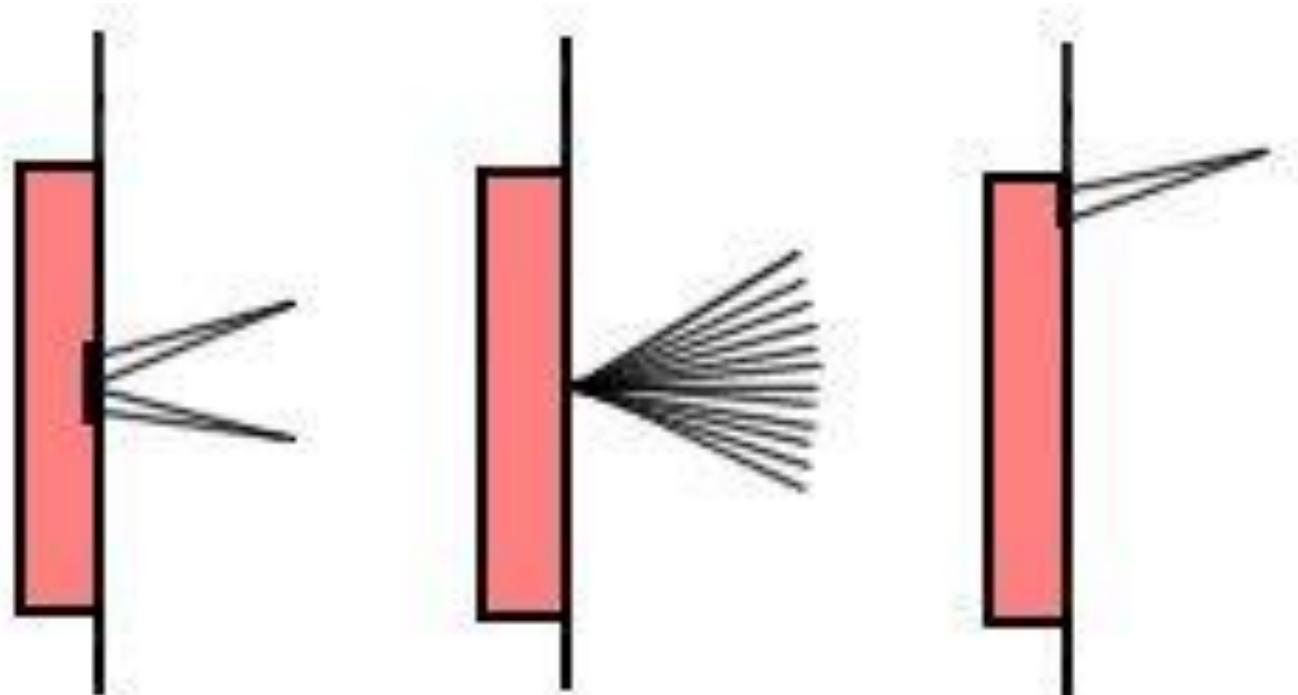


Glazing is installed to a specific specification.

How can you Identify a Fire Door?



How to Identify:



Double Blade Brush Smoke Seal Single Blade Smoke Seal

Types of intumescent strips and smoke seals.

How can you Identify a Fire Safety Door?



5 Basic Checks:

Certification	Look for a label or plug to show that the door is certificated and check the instructions of that certificate.
Compatibility	Essential ironmongery such as locks, latches, closers and hinges MUST be CE marked, firmly fixed and compatible with certification. This includes the door frame and smoke seals and strips.
Alterations	Cutting apertures for glazing and air transfer will make certification VOID as will trimming by more than permitted.
Gaps	The gap between the door and the frame at the sides and the top should be no more than 2-4mm and the threshold gap should be as per manufacturers instructions typically 8-10mm.
Operation	Check that it latches from any position.

How can you Identify a Fire Safety Door?



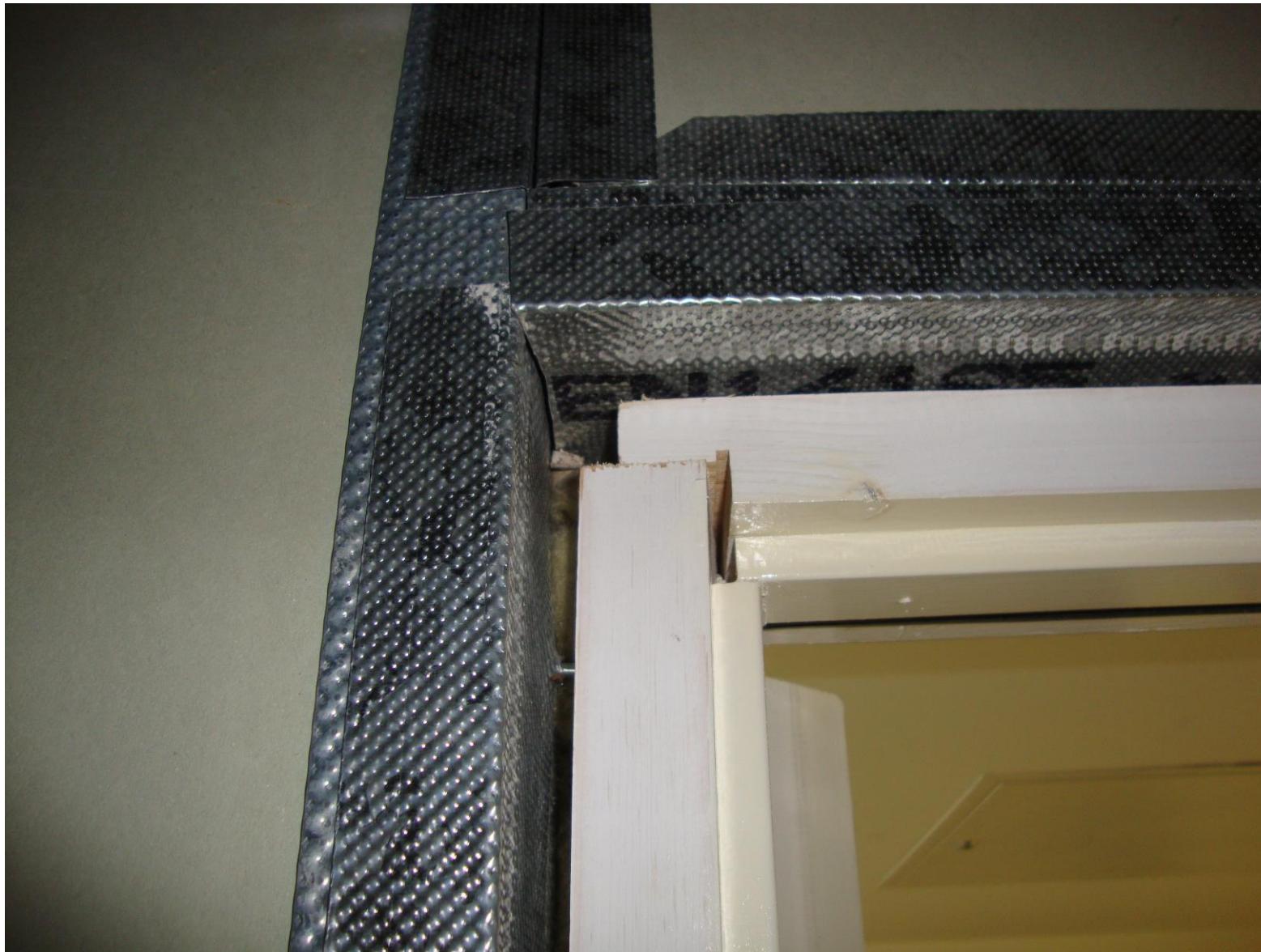
Any of the below indicate a non-fire resistant doorset:

Leaf Thickness	< 44mm (30 mins) or < 55mm (60 mins)
Perimeter Seals	None in existence
Hollow Core	Lightweight and sound hollow.
Glazing Beads	Softwood
Glazing	Unmarked or marked as laminated.
Door Frame	Thickness less than 25mm
Hinges	Only two fitted and not CE marked

FD60

Intumescent Seals	Less than two 20x4 strips.
Door Frame	Softwood frame and/or less than 32mm.

Basic Repairs to Fire Doors – Fire Door assembly



This doorset was not certified, but the frames made on site – can you tell?

Door Assemblies will always be Notional. Even if the door is Certified

Basic Repairs to Fire Doors

Fire Door Maintenance Scheme Accepted Repair Techniques



ART Number:
03

Completed by:
Peter Barker

Date:
1st July 2012



Example of an opening frame joint



Example of a repaired frame joint

Valid to: 30th June 2013

This accepted repair technique is only valid when carried out under the BM TRADA Certification Ltd Fire Door Maintenance Scheme.

Description of damage:

Door frame joints have separated, leaving gaps.

Repair technique:

If the door frame joints have separated, the frame should be repaired by inserting a PVA adhesive into the joint, then bring the two sections together until set, using additional mechanical fixings to hold it in place if necessary.
Alternatively the frame may be completely removed and repaired using conventional joinery methods (re-making half lap joint or mortice and tenon joint).

All joints must be tight with no gaps, using mechanical fixing with the appropriate size ring shank nails or screws..

Limitations for repair:

The door frame must be sound and suitable for repair. A judgment should be made as to whether complete replacement is more cost effective.

Areas on the doorset where this can apply:

N/A

Applicable Door Type:	Yes	No
Timber based	Yes	
Composite		No
Steel		No

Applicable Fire Resistance:

Up to	FD120
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Basic Repairs to Fire Doors

Fire Door Maintenance Scheme Accepted Repair Techniques



ART Number:
02

Completed by:
Peter Barker

Date:
1st July 2012



Void in leaf from removed lockset



Example of approved repair

Valid to: 30th June 2013

This accepted repair technique is only valid when carried out under the BM TRADA Certification Ltd Fire Door Maintenance Scheme.

Description of damage:

Over recessed hardware or hardware that has been removed leaving voids.

This applies to doorsets which have had new items of hardware fitted (hinges, security locks, closers and flush bolts.) and the voids left by the original hardware have not been filled.

Repair technique:

These areas on the door frame and/or door leaf must be made good by jointing in a section of timber (FD30 – softwood 510kg/m³ and FD60 – hardwood 640kg/m³). This must be glued in place with thermosetting urea formaldehyde based adhesive tightly butt jointed in place. Residual gaps upto 1mm are to be filled with an epoxy wood filling product.

Limitations for repair:

This ART does not apply to voids left by the removal of concealed overhead closers due to the location and the volume of timber that will need to be replaced.

This ART does not apply to infilling of apertures such as that left by the removal of glazing or air transfer grills.

Maximum size of void that can be filled (mm):

Hinge blade: 120 (h) x 35 (w) x 4 (d)

Lock forend/keep: 235 (h) x 25 (w) x 4 (d)

Lock body: 18 (t) x 100 (w) x 165 (h)

Flush bolt: 200 (h) x 20 (w) x 20 (d)

A maximum of 4 repairs per leaf may be conducted using this Approved Repair Technique.

Areas on the doorset where this can apply:

N/A

Applicable Door Type:	Yes	No
Timber based	Yes	
Composite		No
Steel		No

Applicable Fire Resistance:

Up to	FD60
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- **This repair to a Fire Door is quite common.**

Common Repairs to Fire Doors

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- Intumescent strips and cold smoke seals must be replaced with those identical to the test evidence
- Regulation 38 for type of Intumescent

Common Repairs to Fire Doors

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- Some repairs you cannot make good!!

Common Repairs to Fire Doors



- Fresh air behind the door jamb.

Non-competent Installation

- The use of foam is constantly abused and this is yet another typical example
- The use of foam is constantly abused but in this case not yet.....



Definition of a Non-competent Person

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It is not all about what contractors install – its about what they use to do it!!



Efficiency is Doing Things Right

Effectiveness is Doing Right Things



Thank you

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