The Role of Fire Doors

BWF-Certifire Fire Door and Doorset Scheme
Fire doors – today’s agenda

1. Fire doors are essential in passive fire protection
   – A requirement in compartmenting a building
   – Protecting escape routes

2. Must be tested to show the design will work in a fire.
   – Certification

3. Can only work correctly when
   – Fitted with the correct compatible components
     • Door + frame / linings
     • Closers, Hinges and other ESSENTIAL ironmongery
     • Seals
     • Glazing
   – I.e. the fire door assembly / or doorset

4. What help can I give you – as fire risk assessors
Fire doors

• As an industry, we’ve had grave concerns over issues surrounding fire doors for a number of years.
  – Poor, incorrect installation
  – Using wrong / cheap products
  – Lack of attention to product certification
  – ‘It’s only a door’

• Main focus has been on new installations

• The RRO means YOU now inherit the problem
  – YOU need to get it put right

• Focus has changed
Circle of Responsibility

They’re YOUR responsibility

- It doesn’t matter where you are in the circle
- Applies to new installations
- Applies to existing doors
‘Kick the Wedge’ Survey

*Fireco Ltd. Jan 2007*

- Survey 100 Accredited Fire Risk Assessors / Fire Safety Officers

<table>
<thead>
<tr>
<th>Issue</th>
<th>Result %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection where flammable / explosive materials are used / stored hazardously</td>
<td>80</td>
</tr>
<tr>
<td>Inspections where Fire Exits were obstructed</td>
<td>80</td>
</tr>
<tr>
<td><strong>Inspections where Fire Doors were wedged open</strong></td>
<td>65</td>
</tr>
<tr>
<td>Inspections where door closer mechanisms have been removed or disengaged</td>
<td>80</td>
</tr>
<tr>
<td>Inspections where Escape Routes are not adequately indicated</td>
<td>70</td>
</tr>
</tbody>
</table>
Other issues

Fire doors wedged open / closers removed or disengaged are only PART of the problem

What we hear about most often

- defective doors, no certificates
- no intumescent strips or smoke seals,
- an absence of suitable fire doors,
- applying fire resistant paints to existing doors
- lack of self-closing devices
- not understanding what the role of a fire door is
- Please HELP!
We take fire doors for granted

We expect them to have been installed correctly. . . .
. . . with correct components because if a fire breaks out . . . . . .
. . . . they’re expected to save lives & protect property
Fire doors at sister block in Camberwell
Source: London Standard

July 3rd: Lakanal House
Camberwell
Source: London Standard
We just don’t know . . .

. . .when a fire will break out

- A new building must comply with current building standards / regulations
- An existing building MUST continue to operate but are compromised by
  - Ventilation
  - Energy
  - Mobility requirements
  - Fire
  - Security
- We need to check that all parts continue to function correctly WITHOUT compromise

What we’re finding under the RRO is many buildings **DID NOT** comply with building standards – and MANY **clients** are picking up the pieces
## Which regulation?

<table>
<thead>
<tr>
<th>Performance</th>
<th>Notes</th>
<th>England &amp; Wales - Approved Documents</th>
<th>Scotland - Sections</th>
<th>Northern Ireland - Technical booklets</th>
</tr>
</thead>
</table>
| Fire Safety       | - Where a Fire Door is required  
                   - The fire resistance period expected  
                   - Specific requirements eg 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 locations, opening forces, provision of vision panels and   
                   light reflectance values required                                     | M                                    | 3                   | R                                    |
| Safety Glazing    | - Where safety glass is required                                        | N                                    | 4                   | V                                    |
Doorsets – the ideal solution

Doors supplied complete with frame / seals / glazed apertures and all ironmongery in one single unit
Fitted as a complete installation
Door leafs – standard practice

**Fire door assembly**
Fire door leaf / approved frame / casing
Compatible Approved Components

CE marked Certifire Approved components – compatible with door test
Door test

Test furnace

Door test sample

Tested as a complete assembly
We expect a jobbing builder or small contractor to be able to install a complex engineered fire safety device \ldots from bits bought from \ldots ?? \ldots

What he doesn’t realise is ALL of the components have to be able to work together to ensure the door assembly will work effectively in the event of a fire.
Why doors have to be certificated

• You need proof of fitness for purpose
  – Comply with building regs.
• A test certificate indicates that the **door configuration** can withhold fire for that period of time
• What many fail to realise - that the **COMPLETE ASSEMBLY** must be installed as it was tested
  – Components as well as door
  – Each configuration requires a NEW test
Each door configuration is subjected to a different fire door test.

You cannot assume that any 2 single doors will work as a double leaf system.
Any additional components, seals and ironmongery must be compatible with the door – confirmed by test evidence.
Certification is crucial

• So how do I know if the door is a fire door?
  – Label
  – Plug
  – Copy of test evidence

• If you have none of these . . .
  – then there’s a doubt about its ability to perform
  – An ‘expert’ assessment can be made
    • But it’s expensive

• How does BWF –CERTIFIRE certification work?
Exova Warrington Certifire is the UKAS test laboratory who **conduct independent testing** of doors and components and **audit check** members.


Tests are made on complete door assemblies, the door and frame with all the necessary hardware.

Doors + components can be traced up or down the supply chain.
What the label tells you

• The rating of the door
• Who made it
  – And how to contact the manufacturer
• The door certificate number
  – CF 380
    • The door allowable configuration
    • Component details
    • Even down to screw size for hinges
• The door’s unique manufacturing number
• If apertured – who was licensed to do so
  – CAF 999
Timber Fire Doors

TS10 CERTIFIRE Technical Schedule for Timber Fire Doors

A&A Joinery & Woodworking Limited
Unit 12 Wednesbury Trading Estate
Off Bilton Road
Wednesbury
West Midlands
WS10 7JN
0121 502 6596
www.aajoinery.co.uk

CAF180
Door Modifier

Allan Binks Timber Limited
Catfoss Lane
Brandeberhton
East Yorkshire

CAF106
Door Modifier
Fire risk assessments

What to check . . . .

1. Door leaf (certification)
2. Door frame
3. Intumescent, smoke, acoustic seals
4. Hinges
5. Door closers
6. Lock and latch
7. Glazing and glass
8. Threshold gap
Door Leaf

- Does the door have a certificate?
- Does the door leaf sit in the door frame?
  - is it free from distortion?
- Is the door leaf free from damage?
  - No cracked / split panels
- If the door leaf is veneered or lipped, is the glue still holding these products firmly in place?
- Don’t consider upgrading an ordinary door with intumescent paints
  - It’s a very specialised job
  - You can’t apply the paint accurately enough with a paint brush
- Don’t patch up the door
Door Frame

• Is the door frame made from the right material?
  – Hardwood for 1 hour and above
• Is the door frame firmly attached to the wall?
• Is the planted stop firmly attached to the frame?
• Is the frame to door leaf gap consistently 3mm (with a tolerance of +/- 1mm)?
• Does the door close evenly into the frame
The 3mm gap between the door and frame is important.
Intumescent Material

Exfoliating Graphite
• Most common type, 17 no different types.
• Expansion between 170 – 300 °C
• High pressure seal, multi directional expansion

Hydrated Sodium Silicate
• Chemical formula, consistent in its performance
• Expands at 100 °C, consistently
• High pressure seal, multi directional expansion

Mono-Ammonium Phosphate
• Referred to as MAP
• Low pressure, high volume expansion
• Commonly used for lock/latch and hinge protection kits
CERTIFICATE No CF 341
LORIENT POLYPRODUCTS LIMITED

LORIENT TYPE 617 SODIUM SILICATE INTUMESCENT SEALS WITH OPTIONAL SS/AS/TS/FS/DS/Finesse SMOKE SEALS

1. Lorient Type 617 Sodium silicate intumescent seals comprise a range of PVC-encased, sodium silicate based, intumescent seals with or without integral smoke seals. The combined seals include integral smoke seal variants of the wipping type, denoted with suffix letters CS (brush pile), FS (brush pile with blade), TS (twin blade), AS (offset blade), DS (offset twin blade) and Finesse (offset folding twin blade). The seals are designated by the letters LP followed by four digits, plus “Type 517.” The nominal overall dimensions (in mm) are given by the first two and last two digits respectively.

Each product range is available in a range of sizes (minimum 10 mm by 3 mm and also larger sizes to suit various door applications).

2. This certification is designed to demonstrate compliance of the product or system specifically with Approved Document B (England and Wales), Section D of the Technical Standards (Scotland), Technical Booklet E (N. Ireland). If compliance is required to other regulatory or guidance documents there may be additional considerations or conflicts to be taken into account.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td></td>
</tr>
<tr>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>TS</td>
<td></td>
</tr>
<tr>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>CS</td>
<td></td>
</tr>
<tr>
<td>DS</td>
<td></td>
</tr>
<tr>
<td>APR</td>
<td></td>
</tr>
<tr>
<td>Finesse</td>
<td></td>
</tr>
</tbody>
</table>

3. The door seals are approved on the basis of:
   (i) A design appraisal against TS35 and TS21
   (ii) Initial type testing
   (iii) Manufacturing frequency checks
   (iv) Ageing and durability tests
   (v) Evidence of technical support
   (vi) Clear and unambiguous labeling of seals
   (vii) Ongoing audit tests in accordance with TS35
   (ix) Inspection and surveillance of factory production control

Page 2 of 3 Signed
Issued: 26th May 2004
Revised: 22nd June 2014

CERTIFICATE OF APPROVAL
No CF 276

This is to certify that, in accordance with CERTIFIRE’s Rules for Certification:
The undersigned products of

ASTROFLAME (FIRESEALS) LIMITED
Unit 8 The I O Centre, Stephenson Road, Sagansworth, Fareham, Hampshire PO15 5JR
Tel: 01329 844300 Fax: 01329 844600
Int tel: +44 (0) 1329 844500 Int fax: +44 (0) 1329 844600
E-mail: sales@astroflame.com Web site: www.astroflame.com

Have been assessed against the requirements of the Technical Schedule(s)
described below and are approved for use subject to the conditions
appended hereto:

CERTIFIED PRODUCT
Astroflame ‘Astrostrip’ Intumescent Fire and Smoke Seals

TECHNICAL SCHEDULE
TS35 – The Contribution of Intumescent Seals To The Fire Resistance Of Pedestrian Type Door Assemblies (issue 2)
Astroflame ‘Astrostrip’ Quad Seal Intumescent Fire, Smoke, Acoustics and Thermal Seals
TS21 – The Contribution of Edge Seals to the Control of Smoke Leakage via Door Assemblies

Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council
Issued: 4th November 2002
Revised: 16th December 2007
Valid to: 11th December 2012
Fire & Smoke Seals

- Is the Fire Door an **FD30(S)** or an **FD60(S)**?
- There is **very limited substitution** on FD30’s and **no substitution allowed** on FD60’s.
- Are there any seals present in the door leaf or frame?
- Are the seals free from damage?
- Are the seals continuous around the door leaf’s perimeter?
- Are the intumescent seals, graphite or sodium silicate?
- If combined fire and smoke seals, are the fins or brushes free from damage?
- Is the door leaf to frame gap still 3mm (+/- 1mm)?
Hinges

- Is there a CE mark /CERTIFIRE Approved?
- Are there a minimum of 3no x 100mm hinge leaves present, complete with screws?
- Are the screws tight and are they all effectively holding the door leaf or frame?
- Are the hinges free from oil leakage or metal fragments, which is a sign of excessive wear + tear?
- Check for wear on hinge knuckles and the pivot pin
- Light lubrication may be required
Door Closers

- Is there a CE mark?
- Is the closer correctly attached to the door leaf and frame?
- Is the closer free of damage and not leaking any oil?
- If you open the door 5° or 75mm, will it close the door and engage the latch?
- If the arms are disengaged, is the Fire Door (when closed) in line with the frame and the intumescent seal?
- Pivoting arms and terminal fixings need to be checked for tightness and lubricated as appropriated.
- Opening, closing and latching speeds should be regularly checked and adjusted.
Electro-Mag Hold Open Devices

- Is there a CE mark?
- Periodic checks must be conducted with the fire/smoke alarm tests weekly (as required in RRO).
- Does the hold-open device release the door when the power to the door is cut?
- If you open the door 5° or 75mm, will it close the door and engage the latch?
- Is the magnet (if separate) fixed on the same plane as the door closer?
- Look for door bowing or twisting if not positioned correctly
Floor Springs

• Is there a CE mark?
• Careful inspection of the lower pivot area should be taken to remove any debris which may prevent closing.
• The upper pivot should not show any signs of wear and any indicated wear must be rectified to prevent the door jamming at critical times.
• If you open the door 5° or 75mm, will it close the door and engage the latch?
• If double action does the door centre everytime and without ‘play’.
• Check floor is sound
Lock or Latch

- Is there a CE mark?
- Bolts for locks or latches should be regularly checked to ensure that they fit centrally into their respective keeps, and hold the Fire Door into the frame.
Panic + Emergency Exit Devices

- Is there a CE mark?
- Moving parts should be checked for wear and tear and replaced as required.
- Lubrication should be used where indicated.
- Screws and all fixings should be tested to ensure that they are secure.
- Electro-Mag devices should be tested with power off to ensure their continued use is available following power cuts.
- Floor sockets should be checked and cleaned regularly.
- Use of cable ties to prevent unauthorised use is illegal.
- Does the door lock when closed?
Glazing Detail

• Are the glazing beads well attached to the door leaf and free from damage?
• Is the glass free from damage and cracking?
• Is the intumescent glazing seal continuous and attached to both the glass and bead?
• If the glass is below 1500mm from the bottom of the door is the glass a fire rated safety glass?
Glass – what to look for

• Official evidence from a competent authority demonstrating the fire-resistance performance of the glazed system
• Evidence of installer competence (e.g. a UKAS-accredited certification body)
• A permanent stamp on the glass that indicates, as a minimum, product name and manufacturer/supplier, and possibly the fire performance rating as well
• The stamp must be visible and readable after glazing
• Marking of the applicable impact performance class (ie either class 1, 2, 3 according to BS 6262 Part 4)
Fire resistant glass - guidelines

Glass and Glazing Federation
Best Practice Guide
http://www.ggf.org.uk/frrg.aspx

Fire Resistant Glazing

Fire Resistant Guide

Fire Resistant glazing provides protection for lives and property in the event of fire. The fire environment is hostile and its effects can be catastrophic for both life and property. The occurrence of fire and its development is also essentially unpredictable and uncertain.

It is therefore critically important that the specification, selection, and installation of fire resistant glazing are all carried out with close attention to detail. Fire resistant glazing may be used as a barrier for the fire separation or compartmentation as part of an integrated fire safety strategy for the building.
Fire Rated ATG’s

- On an **FD30 or FD60**: remove cover grille and check that a Fire Resistant air transfer grille has been fitted (giving hot smoke protection).
- Ensure the ATG is free of blockages, replace if necessary.
- If an **FD30S or FD60S**: ensure electro-mechanical device has been fitted (giving cold smoke protection) and works!
- Periodic checks must be conducted with the fire/smoke alarm tests weekly (as required in RRO).
- Does the vent automatically shut down when the power to the door is cut?
- Ensure the electro-mechanical ATG is free of blockages
Threshold Gap

• If a Fire Door – the permissible threshold gap is **10mm**.

• If a Fire and Smoke Door – the permissible threshold gap should be **3mm** – the same as the perimeter gap.

• Does the door freely swing, without binding?
What you can do

• Depends on many circumstances and assessment of risk
• Tighten screws – but why have they become loose?
• Adjust closers, locks latches etc. – lubricate
• Check glass – replace – like for like
• Check gap between door and frame
• Replace seals – like for like
• Use the labels for traceability
• **If in ANY doubt – consult experts**
  – Use BWF Directory
  – Use website
• **Do NOT cut corners**
SEARCH IN YOUR AREA

HOME > FIRE DOORS

Fire doors

A fire door is a vital safety feature in any building, so specification, fitting and maintenance are the key factors to remember. If you decide to change a fire door, it’s time to think about certification.

Why is certification important? Who certifies them? How do I know a door is certified? Click here to read more.

Fire door certification

Fire doors - your responsibility

What really happens when you get it wrong? How to specify fire doors correctly. What are your responsibilities? View our film here to find out more.

Publications & Technical

Your access to essential information concerning fire doors. Which Building Regulations apply to fire doors and other frequently asked questions. Read more.
Circle of Responsibility

They’re YOUR responsibility

• It doesn’t matter where you are in the circle
• Applies to new installations
• Applies to existing doors
Further Information

Directory of members - Literature and Fact Cards
www.bwf.org.uk/firedoors
Views / Comments / Questions

ANY QUESTIONS?