



**PFPF and FTSG Agreed Assessment Rules for:
FD30 Timber Based Doorsets**

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Introduction

The aim of the document is to give confidence to end-users that assessments which exist in the UK market and have been produced by organisations that subscribe to this document, are of a satisfactory standard to be used in lieu of fire tests for building control and other purposes.

Subscribing organisations are required to satisfy the corporate requirements of this document i.e. to employ individuals that subscribe to professional principles and to have a nationally recognised quality system accredited to EN ISO 9000 or EN 45000.

The document includes and extends upon the principles and procedures embodied in FTSG Resolution 82: 2001 and its predecessors Resolution 64 and 64a: 1993. These resolutions which have been widely circulated to regulatory authorities, consultants and manufacturers for many years are added to by this document.

This document relates to the production of assessments which are offered in the absence of specific fire resistance test results.

The PFPF and UK Fire Test Study Group (FTSG) an association of the major fire testing laboratories in the UK and the relevant UK Trade Associations have produced this document

In all cases, the resulting assessment will be carried out in accordance with the PFPF guide to undertaking assessments in lieu of fire tests and applies to tests conducted in accordance with BS 476: Part 22 or EN 1634-1.

Where an assessment is required which is not covered by the rules contained herein, the assessment will be the subject of expert judgement.

If an application for an assessment is considered within the scope of the rules contained herein but is rejected by the assessing body, the application may be passed for clarification by the other laboratories who are members of the FTSG and who have appropriate experience in the construction under consideration.

Note to users – Where it is possible to identify specific parameter failures, the assessment for all other construction parameter variations can be based on the performance achieved after isolating the premature failure(s).

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Definitions:

High, Medium & Low distortion –

- low <40% of effective rebate depth
- medium >40% and <85% of effective rebate depth
- high >85% of effective rebate depth

Where more than one test report is provided, the average of the maximum distortion values of all reports shall be used. The measurements shall be taken from the start of the test at any time during the complete required classification period, including any required overrun period required to achieve Category B (*Note: measuring positions are given in EN 1634-1 but it is intended that these will be clarified further by FTSG/EGOLF*).

The values shall be the maximum movement measured at any position at the edges of the door leaf/ves above the neutral pressure axis.

Where double-leaf and single-leaf doorsets are considered as part of a 'family' the distortion levels may be separated in determining the maximum allowable leaf sizes.

Glazing system –

A complete system including any lining, beads, bead fixings, glass and glazing gasket. The edge cover, expansion allowance etc shall be maintained in all cases.

Isolating failures –

Where it is been possible, to identify specific parameter failures, the assessment for all other construction parameter variations can be based on the performance achieved after isolating the premature failure(s).

Intumescent Door Edge Seals

Scope:

Exposed, intumescent-cored door edge seals when fitted into 30 minute, non-metallic single-acting, single-leaf doorsets i.e. doorsets which include timber leaves hung into a timber frame.

Test Protocols:

Unless otherwise stated in the following text the construction of the door assembly to be tested shall be covered by valid certification.

If the formulation, manufacturer or seal type of the intumescent material is proposed to be amended, a full appraisal, including a full scale test will be required.

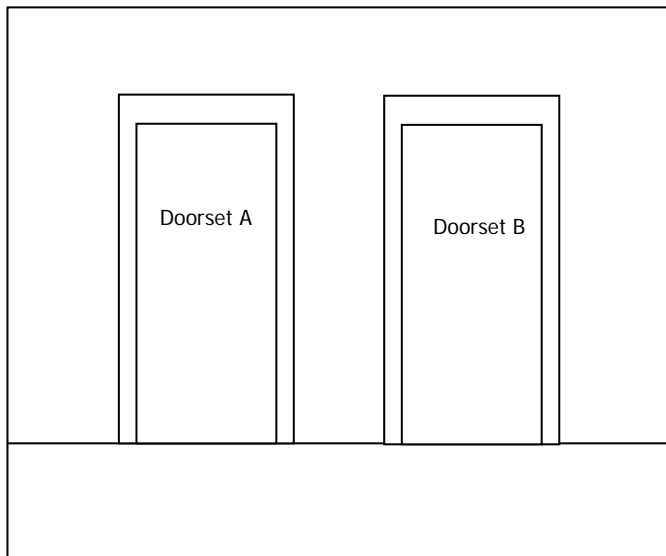
The acceptance of the seals into these alternative doorsets shall be in accordance with the following principles:

- The approved configurations and sizes of the seals will be as tested in the test described above. In situations where the door manufacturer requires a larger seal than that approved by this method, there shall be no substitution.
- Where doorsets other than those stated above are required a specific test using that doorset shall be conducted Note: Doorsets other than those described above cannot be assessed unless specifically tested
- For the assessment of seals into single acting, single leaf or double leaf doorsets, there is a requirement to conduct a test in order to provide basic test evidence on the seals at the required dimensions.
- In order for the assessment to take place, the doorsets that the seals will be fitted into should also have been successfully tested for at least 30 minutes.

Test for Single leaf doorsets

- The seal shall have been subjected to a test in accordance with BS 476: Part 22 or EN 1634-1 using the doorsets shown in Figure 1. The doorsets shall be Single acting, single leaf unlatched doors (flax core, door type A; low density/GDC core, door type B)
- The leaf shall be 2040mm high by 926mm wide
- Rails and stiles a maximum of 420kg/m³ density
- The door leaf to frame gaps to be set between 3mm and 4mm.
- The door leaves shall be unlatched. (A latch and strike plate shall be included in the doorset but will be wired to be inoperable via the handles)
- All doorsets to be of proven performance for the element to be tested (apart from the seals)
- All door leaves to open towards the furnace
- All doorsets to achieve **at least 30 minutes integrity**
- The same size and configuration of seal, as chosen by the seal manufacturer, shall be used for all doorsets
- Hinges to be appropriate to the intended doorset and fire performance

- Door frame to be 70mm by 30mm with a 12mm high stop
- The seals shall be interrupted at the hinge, latch and strike plate positions unless the normal fitting of the seal precludes this.
- The doors shall be held closed by an appropriate 'fire rated' size 3 closer



Where:

Door A = Flaxboard (350kg/m³ maximum density) core

Door B = Graduated density Chipboard Core

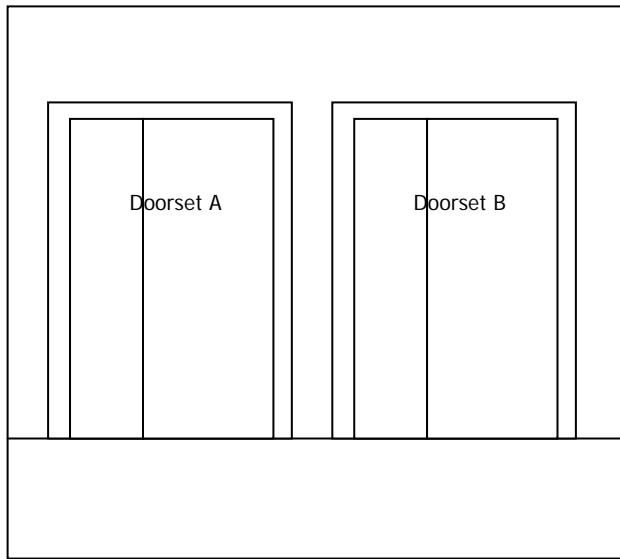
Figure 1

Test for double leaf doorsets

For the approval of seals into single acting, **double leaf** doors, there is a requirement to conduct a test in order to provide basic test evidence on the seals at the required dimensions. This does not approve tube board cores.

The test will be as follows:

- The seal shall have been subjected to a test in accordance with BS 476: Part 22 or EN 1634-1 using the doorsets shown in Figure 2. The doors shall be Single acting, double leaf unlatched doors (Flax core, low density/GDC core)
- The leaves shall be 2040mm high by 826mm wide, larger leaf and 2040mm high by 300mm wide, smaller leaf
- Rails and stiles a maximum of 420kg/m³ density
- The door leaf to frame gaps to be set between 3mm and 4mm.
- The door leaves shall be unlatched (A latch and strike plate shall be included in the doorset but will be wired in operable via the handles)
- All doorsets to be covered by current certification for the tested element (apart from the seals)
- All door leaves to open towards the furnace
- Door types A and B to achieve **at least 30 minutes integrity**
- The same size and configuration of seal, as chosen by the seal manufacturer, shall be used for both doorsets
- Hinges to be appropriate to the intended doorset and fire performance
- Door frame to be 70mm by 30mm with a 12mm high stop
- The seals shall be interrupted at the hinge, latch and strike plate positions unless the normal fitting of the seal precludes this.
- The doors shall be held closed by an appropriate 'fire rated' size 3 closer



Where:
 Door A = Flaxboard (350kg/m³ maximum density) core
 Door B = Lamel core

Figure 2

Single leaf doorsets

Rule FD30 - 1. A successful test, meaning 30 minutes or greater, will allow use with all other FD30 2040mm by 926mm single acting single leaf doors with minimum 42mm leaf thickness which have been tested with another seal on this basis.

Double leaf doorsets

Rule FD30 - 2. A successful test, meaning 30 minutes or greater, on both double leaf doorsets shown in Figure 2 will approve use with all other FD30 2040 by 826 (x 2) single acting, double leaf doors with minimum leaf thickness of 42mm.

Interchangeability of Glazing systems

Scope:

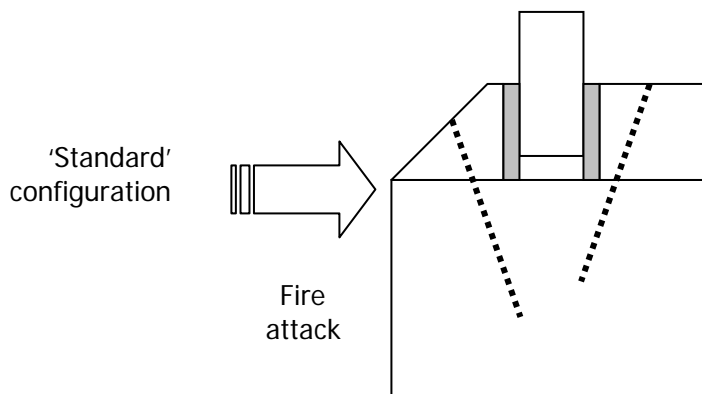
Glazing systems within 30 minute, non-metallic doorsets i.e. doorsets which include timber leaves.

Limitations:

Interchangeability of glass types is outside the scope of this test/appraisal method.

Test Protocol:

There is an agreed standard configuration for a test to prove the performance of the glazing system. This can be used to justify use of alternative systems for assessors who wish to consider different glazing systems in a particular doorset. It would also allow the seal manufacturers to have a 'standard' type test to show assessors and end users to justify interchangeability.



For systems which include non-insulated glass, the above test is to be used to give approval of alternative beads and intumescent seals.

The parameters to be used for the test are:

- Density and size of the beads (a possible size for the beads was between 10mm and 15mm)
- The door leaf for the above test should be chosen from the list of worse case scenario door cores
- The sizes would be based upon a 1000mm by 1000mm door leaf with an aperture approx 600mm by 600mm.
- The beads to be manufacturer specific bead height
- The test construction (door leaf) to be at least 990mm by 826mm with an aperture at least 600mm by 600mm
- Setting blocks were to be used when the system required it
- Fixings at 200mm centres directly into a flaxboard (density 350Kg/m³) cored door and angled at nominally 30° to the face of the glass
- The beads are to be European Redwood (450-500Kg/m³)

Rule FD30 - 3. If a result over 33 minutes has been achieved in the above small scale test, the tested glazing system, including the glass, can be used in any other 30 minute timber doorset with a leaf thickness equal to or greater than tested and up to the tested aperture size. Any treatment to the aperture is to be considered part of the glazing system and must remain with the glazing system. The proposed doorset shall have been previously tested with a proprietary (off the shelf) glazing system i.e. not a bespoke manufactured system.

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| Rule FD30 - 4. If a result over 33 minutes has been achieved, the bead geometry may be changed providing the proposed shape is not less than the chamfered bead section size and the bead height may be changed by up to +5mm, unless the height is specified as part of the glazing system, but not for thermally toughened glasses. |
| Rule FD30 - 5. If a result over 33 minutes has been achieved in the indicative test, then the bead fixings may be increased in number and changed to screws at the same or greater frequency. |

Variations of Glazing System

Previously successfully tested glazed apertures may be modified as follows:

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| Rule FD30 - 6. The size of the tested glazing system may be increased in line with an overrun of performance e.g. a 36 minute result would result in an increase in 20% height or width or area, up to a maximum increase of 25% in any dimension. The size of the tested glazing system may be decreased without limit. |
| Rule FD30 - 7. Fixings: Rule FD30 - 8. Worst – brads (air fired), Next – panel pins/nails, Best – screws. The above relationship is correct providing the material and angle of fixing is maintained and the length and gauge are maintained or increased. The fixing centres may be decreased but not increased unless tested. Unless tested otherwise, all fixings shall be angled under the glass |
| Rule FD30 - 9. Aperture (timber) lining: Best – hardwood, Next – softwood, Worst – no lining |
| Rule FD30 - 10. Glass type: In order to change the glass tested, separate tests are required for each type of glass subject to the rules given below: <ul style="list-style-type: none"> - Monolithic (unlaminated) glasses are considered interchangeable apart from modified toughened soda lime glasses - Tests on modified toughened soda lime glasses validate use with toughened borosilicate, monolithic wired glass and ceramic glass but not vice-versa - Laminated glasses are limited to the thickness tested In all cases the proposed glass must show evidence of suitability in the proposed glazing system in a timber based door leaf and at the same or larger size A small scale fire resistance test may be used to provide evidence of the alternative system and/or glass providing the small scale test is be designed to replicate the upper half of a complete doorset. When this is the case, the tested glass may be increased in height providing the area of the glass is not increased above that tested. |
| Rule FD30 - 11. If an aperture is successfully tested, it may be divided into any number of apertures providing the area does not exceed the tested aperture area and the leaf material between the apertures is at least two times the thickness of the leaf thickness. |
| Rule FD30 - 12. It is possible to change the shape of the tested aperture providing the area of leaf cut out tested in the door is not exceeded and that the proposed shape can fit within the tested/modified aperture. It is also required that there is no change to edge fixing technique and providing there is test evidence to support the shape of glass/glazing system selected (this may be provided by the glass/glazing system manufacturer). |

Rule FD30 - 13. A glazing system previously tested in a timber door leaf may be substituted in another timber based door leaf assuming the door leaf into which it is proposed to be fitted has previously been tested having incorporated an aperture of the proposed dimensions (height/width and area) subject to the hierarchy below where 1 is the most onerous and 4 is the least onerous:

- 1 Flaxboard/Chipboard
- 2 Graduated Density Chipboard
- 3 Softwood or Hardwood Lamels

Note: Any system to be assessed into tubeboard can only be assessed if actually tested in that material, otherwise a hardwood timber liner (minimum 6mm thick) will always be required.

Doorset configuration

Scope:

Timber door leaves hung within timber frames.

Agreed Rules:

Rebates at meeting edges of doorsets will have the following hierarchy (where 1 is the most onerous and 4 is the least onerous):

- 1 Equal Rebates
- 2 Unequal Rebates
- 3 Plain/radiused Meeting Edge
- 4 Clashing Strip (Astragal)

In all cases the tested intumescent detail shall remain the same.

For doorsets which include flush over and/or sidepanels, the table showing doorset configurations shows the hierarchy for testing and assessing alternative configurations of flush panels.

For over and/or sidepanels which are to be used with a separating frame member may be used freely.

It is a requirement to achieve 3 additional minutes over the required classification period where only one test is submitted. In the cases where more than one test report is submitted the results shall be more than the classification period.

Door leaf size

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| Rule FD30 - 14. | Possible to increase the size of leaves and/or side/overpanels by the same % as achieved overrun when factored by 1 for no distortion doorsets, 0.75 for low distortion doorsets, by 0.5 for medium distortion doorsets and when factored by 0.33 for high distortion doorsets where: <ul style="list-style-type: none">- low <40% of effective rebate depth- medium $\geq 40\%$ and $\leq 85\%$ of effective rebate depth- high >85% of effective rebate depth <i>Note – interpolation between the distortion levels and the factors is acceptable.</i> |
| Rule FD30 - 15. | A successful test on unequal width double leaf doorset will cover single and double leaf doorsets and other unequal width double leaf doorsets where the smaller leaf can be larger but not smaller than tested and the ratio of leaf widths does not increase (i.e. 4:1 can go to 3:1 but not to 5:1) <i>Note: particular attention shall be paid to the adequacy of the intumescent arrangement at the closing edges.</i> |

Building Hardware

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| Rule FD30 - 16. | The door closer shall be CE marked for use on fire resisting doorsets. Surface mounted door closers are interchangeable providing the alternative surface mounted closer has been tested as an active door closer on the exposed face of an unlatched door leaf where the leaf opens away from the furnace and in parallel arm or slide arm (as relevant) configuration. |
| Rule FD30 - 17. | Hinges which have been tested on a similar timber doorset, which are fixed in a similar way and are of a similar size are interchangeable. Single axis hinges shall be CE marked for use on fire resisting doorsets |
| Rule FD30 - 18. | All critical components in any hardware must have a melting point $>800^{\circ}\text{C}$ unless proven by test. |
| Rule FD30 - 19. | Any doorset which is having a latch assessed into it must have been tested with a latch. |
| Rule FD30 - 20. | Roller bolts cannot be substituted into doorsets which require a latch and/or bolt as a restraining element i.e. roller bolts will not provide a restraining aspect to the door leaf. |

Small scale testing

Rule FD30 - 21. It is acceptable to test the following components on a small scale furnace (minimum 1000mm by 1000mm) to obtain evidence for use in an assessment. The specimen shall be a normally hung section of a door leaf within a door frame and latch to represent the appropriate distance between the top edge of the leaf and the latching mechanism (where fitted). The pressure conditions shall be chosen to represent those typically found in a full scale test at the anticipated position of the item under evaluation.

- Non-intumescent seals
- Locks/latches
- Electrical components
- Door viewers
- Door furniture
- Protective plates e.g. kick/finger plates
- Decorative elements e.g. panels, mouldings
- Letter plates
- **Alternative** flushbolts providing the door leaf has full scale evidence including a flushbolt of a similar type, size and fitted in a similar position
- **Alternative** air transfer grilles where margins of $\geq 200\text{mm}$ of door leaf are provided on all sides. The door leaf must have full scale evidence including apertures of the required size and at the required height
- **Alternative** concealed door closers. The door leaf must have full scale evidence including a concealed door closer of a similar type, size and configuration

If the component is not listed above, they shall not be evaluated in a small scale test unless covered by EN 1634-2

In all cases the fixing details for the item shall be appropriate to the door leaf type and material.