



## **PFPPF and FTSG Agreed Assessment Rules for: Metallic 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.

*Note to users – 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).*

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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.

### 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.

### Door leaf size

Rule SD1. Height –possible to increase the leaf size in line with direct application or possible to a maximum addition equal to the tested dimension between the latch and top of the door and providing an additional top hinge/dog bolt together with additional latch in the area of the top free corner are incorporated or possible for doorsets which have achieved category B up to:

- 15% for high distortion
- 20% for medium distortion and 25% for low distortion, providing overlap of door to frame jamb is not reduced and additionally (for EW) a thermal emission calculation within the 15 KW limit

For doorsets which do not achieve Category B it is possible to increase the size of leaves in accordance with the following calculation:

$$\frac{\text{Actual overrun from test}}{\text{Required minutes to achieve Category B}} \quad \text{X \% increase indicated above}$$

Example: 120 minute door achieves 128 minutes and is medium distortion, therefore

$$\frac{8 \text{ mins (actual overrun)}}{12 \text{ minutes (overrun for Cat B)}} \quad \text{X 20\% (medium distortion)}$$

= 15% increase in height

For doorsets where no distortion measurements are available, the distortion of the leaves shall be assumed to be high distortion

Rule SD2.	<p>Width – possible to increase the leaf size in line with direct application or possible for doorsets which have achieved category B up to:</p> <ul style="list-style-type: none"> <li>- 15% for high distortion</li> <li>- 20% for medium distortion and</li> <li>- 25% for low distortion,</li> </ul> <p>providing overlap of door to frame jamb is not reduced and additionally (for EW) a thermal emission calculation within the 15 KW limit</p> <p>For doorsets which do not achieve Category B it is possible to increase the size of leaves in accordance with the calculation given in Rules SD1</p> <p>For doorsets where no distortion measurements are available, the distortion of the leaves shall be assumed to be high distortion</p>
Rule SD3.	<p>Area - possible to increase the leaf size in line with direct application or possible for doorsets which have achieved category B up to:</p> <ul style="list-style-type: none"> <li>- 20% for high distortion</li> <li>- 25% for medium distortion and</li> <li>- 30% for low distortion,</li> </ul> <p>providing overlap of door to frame jamb is not reduced and additionally (for EW) a thermal emission calculation within the 15 KW limit</p> <p>For doorsets which do not achieve Category B it is possible to increase the size of leaves in accordance with the calculation given in Rules SD1</p> <p>For doorsets where no distortion measurements are available, the distortion of the leaves shall be assumed to be high distortion</p>
Rule SD4.	<p>For doorsets that achieved a classification in excess of that required, the allowable size increases given above may be increased by an additional 5% of tested door leaf size per 30 minutes of classification period overrun up to a maximum of an additional 15%. However for double-leaf doorsets, an astragal shall always be used regardless if it was tested with such a component or not.</p>

### Glazing System/Apertures

Rule SD5.	<p>The type of glazing system including type and number of fixings per meter of perimeter, shall not be changed from those tested unless appropriately covered by test evidence in a similar type doorset, acceptable test evidence is outlined in SD6 or unless tested glazing systems have achieved Category B. In this case, it is possible to change beads providing the material, fixing, edge retention of the glass, glass edge cover and clearance are maintained.</p>
Rule SD6.	<p>A glazing system previously tested in a steel door leaf of similar construction (particularly the core material), may be assessed in another steel 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)</p>
Rule SD7.	<p>The size of the aperture tested in the full size door leaf may be increased up to a maximum 15% increase in height and/or width subject to a maximum increase of 20% in area for apertures tested in a door that achieved category B.</p>
Rule SD8.	<p>Possible to reduce the size of the leaf cut out by 50% and possible to remove the cut out if the size is 25% or less than the leaf area or for up to 30% of leaf area for low distortion doors.</p> <p>Where more than one test is available, interpolation between the tested glazed aperture sizes is allowable.</p>

Rule SD9.	Possible to increase the number of glazed apertures providing the distance between panes has been tested (this can include the aperture to leaf edge detail) and providing this distance is not reduced and providing the tested leaf cut out area is not to be exceeded.
Rule SD10.	The minimum distance that glass can be located from an edge is as tested or 150mm if minimum tested distance is >150mm. The distance between glazed apertures shall not be reduced from that tested. Other positioning within the door may be allowed if this does not involve the removal of structural members (subject to the above rule). Repositioning of stiffeners is allowed provided they are repositioned in accordance with agreed door construction rules.
Rule SD11.	The shape of the glazed aperture may be changed providing the tested area is not exceeded and no change to edge fixing technique and providing there is test evidence on the selected shape of the glass (perhaps from the glass manufacturer).
Rule SD12.	A change in aspect ratio is allowed provided that the pane fits within the maximum pane dimensions.
Rule SD13.	<p>Glass type:</p> <p>In order to change the glass tested, separate tests are required for each type of glass subject to the rules given below:</p> <ul style="list-style-type: none"> <li>- Tests on monolithic wired glass cover toughened borosilicate glass (subject to appropriate edge cover and clearance requirements) but not vice-versa</li> <li>- Tests on modified toughened soda lime glasses validate use with toughened borosilicate, monolithic wired glass and ceramic glass but not vice-versa</li> </ul> <p>In all cases the proposed glass must show evidence of suitability in the proposed glazing system in a steel based door leaf at the same or larger size</p> <p>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.</p>

## Hardware

Rule SD14.	The door closer shall be CE marked for use on fire resisting doorsets. The type of door closer can be changed providing the alternative closer has been tested as an active door closer on the fire exposed face of an unlatched door leaf. If the closer is to be face mounted the test evidence shall include fitting on the unexposed face of a steel door leaf. For installation onto uninsulated door leaves, the door closer shall have been tested on the unexposed face of an uninsulated steel door leaf for the required classification period. The closer shall use the same arm configuration as tested.
Rule SD15.	A surface mounted overhead door closer shall not be assessed to be directly above uninsulating glass unless tested in this specific application
Rule SD16.	The lock/latch may be changed providing the alternative has previously been successfully tested in a full size or small scale test and the door preparation method is not amended. The test evidence should cover the required doorset type i.e. insulated or non-insulated metal doorset and for the required classification period.
Rule SD17.	All critical components in any hardware must have a melting point >800°C and in >900°C for doorsets in excess of 90 minutes integrity.
Rule SD18.	Any doorset which is having a latch assessed into it must have been tested with a latch.
Rule SD19.	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.
Rule SD20.	Live and dead electromagnetic locks must be tested on both faces as in the closer

situation.
Rule SD21. Bolt throw length must not be reduced.
Rule SD22. Alternative hinges must be tested in a similar construction and fixing and preparation of the door should be similar to that tested. For single axis hinges, the hinges shall be CE marked for use on fire resisting doorsets.

## Configurations

Rule SD23. Tests conducted on rigid supporting construction can be assessed to flexible supporting constructions.
Rule SD24. Tested double with overpanel (transom and flush) covers singles with overpanels
Rule SD25. A test on an unlatched doorset can be assessed to a latched and/or bolted doorset (as relevant) providing the door leaf was tested successfully with appropriate (disengaged) latch and flush bolts. This is applicable to single and/or double leaf doorsets. It is not possible to assess a latched and/or bolted doorset to be unlatched.
Rule SD26. For uninsulated doorsets, it is possible to assess latched, single-leaf doorsets from a test on a latched or unlatched double-leaf doorset. Furthermore, the size increases considered in rules SD1 to SD4 may also be applied, where appropriate. The overlap provided around the edges of the tested double-leaf doors shall be replicated in the single-leaf configuration. Unless specifically tested, unlatched, single-leaf doorsets can only be assessed from an unlatched double-leaf doorset test and at the tested leaf sizes.
Rule SD27. 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)
Rule SD28. The method of hanging of the tested doorset can not be changed i.e. single action & double action with the exception of it being possible to cover a double-acting doorset by a successful test on a single-action pivoted doorset and providing there is appropriate test evidence on the closer and pivots in both exposure conditions and on a doorset of similar construction. In this case the door frame depth shall be 3 times the leaf thickness.
Rule SD29. If the test included a overpanel (flush or transom), the overpanel can be removed providing the overpanel is replaced by a frame section at the head which is fixed back to the supporting construction. The type of overpanel cannot be interchanged.
Rule SD30. Double egress doors must be tested
Rule SD31. Rebated and flush/plain meeting edges can not be interchanged
Rule SD32. Astragal may be added to doorsets which were tested with plain meeting edges providing the astragal is not more than 4mm thick
Rule SD33. It is not possible to change the door leaf or frame material from mild steel to stainless steel or vice versa
Rule SD34. It is not possible to substitute a timber door leaf for a steel door leaf nor vice versa
Rule SD35. It is not possible to assess a doorset into a glazed screen
Rule SD36. Fanlights and sidelights, cannot be added to the doorset without testing the doorset in a glazed screen

Rule SD37.	<p>A glazed screen construction may only be modified with specific test evidence with the following exceptions:</p> <p>Glass type:</p> <ul style="list-style-type: none"> <li>- Tests on monolithic wired glass cover toughened borosilicate glass (subject to appropriate edge cover and clearance requirements) but not vice-versa</li> <li>- Tests on modified toughened soda lime glasses validate use with toughened borosilicate, monolithic wired glass and ceramic glass but not vice-versa</li> <li>- Laminated glasses are limited to the thickness tested if there is only one test</li> <li>- Linear interpolation, of performance, is permitted between different thicknesses of Laminated glasses of the same type</li> </ul> <p>In all cases the proposed glass must show evidence of suitability in a steel based glazing system providing the maximum glass size and aspect ratio, edge retention of the glass, glass edge cover and clearance as tested with the proposed glass are maintained.</p>
Rule SD38.	Solid side and/or overpanels cannot be assessed without specific test evidence

### Supporting Constructions

Rule SD39.	<p>Tests conducted in a rigid supporting construction can be assessed to flexible supporting constructions for up to 60 minute applications providing they can be shown to provide appropriate fixity and any combustible materials are not in direct contact with the frame components. For periods of 60 minutes and above, any steel or timber stud shall be clad on its reveal face with an fire protecting board e.g. plasterboard or calcium silicate</p>
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### Door frames

Rule SD40.	Possible to increase the dimensions of the tested frame providing that the cross section detail at the leaf rebate position is retained or increased
Rule SD41.	It is not possible to substitute a timber door frame for a steel door frame nor vice versa
Rule SD42.	Substitution of infill material is acceptable in line with the following table providing the doorsets are Integrity only.

Test with	Approves this material				
	Mineral wool	Gypsum board	Gypsum plaster	Mortar	Concrete
Mineral wool	N/A	yes	yes	yes	yes
Gypsum board	no	N/A	yes	yes	yes
Gypsum plaster	No	no	N/A	No	no
Mortar	No	No	No	N/A	no
Concrete	no	no	yes	yes	N/A

## Small scale testing

Rule SD43. 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:

- Glazing systems (where margins of  $\geq 200$ mm of doorset are provided on all sides of the glazing system) in order to provide test evidence of the complete glazing system but not the door leaf (see earlier rules)
- Leaf/frame claddings & coatings
- Non-intumescent seals
- Locks/latches
- Electrical components
- Door viewers
- Door furniture
- Protective plates e.g. kick/finger plates
- Decorative elements e.g. panels, mouldings
- Anti Finger trap devices
- Letter plates
- **Alternative** air transfer grilles where margins of  $\geq 200$ mm of door leaf are provided on all sides. The door leaf must have full scale evidence including apertures of the required size

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