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An assessment of the fire performance of double-leaf access panel doors, up to 2000mm wide x 2600mm high, installed in steel-framed partition systems

Prepared for: Fire Proofing Services Limited Evolution House Aston Road Nuneaton CV11 5EL

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Protecting People, Property and the Planet



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Contents

1	Introduction	
2	Scope	4
3	Supporting data	4
3.1	BRE test report no. 248908	4
4	Description of the proposed access panel doors	5
4.1 4.2	Construction Installation	5 5
5	Assumptions	6
6	Assessment	6
7	Validity of the assessment	7
7.1	Declaration by applicant	7
7.2	BRE Global declaration	7
8	Figures	8



1 Introduction

A fire resistance test has been carried out on a double-leaf access panel door installed in a steel-framed partition system. This assessment report considers the fire performance of similar access panel doors with larger leaf sizes than those tested.

2 Scope

This assessment report considers the fire resistance of double-leaf access panel doors installed in steelframed partition systems against the integrity criteria of BS 476: Part 22: 1987, for fire exposures of up to 120 minutes from the opening side only.

3 Supporting data

This assessment is based on supporting test data which is more than five years old. This supporting data has therefore been reviewed against current test procedures.

3.1 BRE test report no. 248908

A double-leaf access panel installed in a steel-framed plasterboard partition was subjected to a fire resistance test in accordance with BS 476: Part 22: 1987 on 28 September 2005 for a duration of 132 minutes.

The access panel frame was constructed of 1.2mm-thick polyester powder coated Zintec steel. The frame was a Z-section, nominally 25mm x 68mm x 50mm, with the 25mm face on the closing, unexposed side of the specimen.

The access panel comprised two leaves, each nominally 895mm wide x 2385mm high, consisting of a 1.0mm-thick polyester powder coated Zintec steel skin on one side and 15mm Lafarge GTEC plasterboard on the other. Four pre-formed 1.5mm-thick top-hat stiffeners, two horizontal and two vertical, were spotwelded to the rear of the steel skin and the plasterboard was fixed to them.

The leaves were each fitted with continuous hinges, the active leaf with a three-point locking mechanism and the passive leaf with a two-point locking mechanism.

Envirograph self-adhesive intumescent strips, ref. G10/10, nominally 10mm wide x 2mm thick, were fitted around the inside edge of the frame and the rear edge of the door tray. In addition, strips of self-adhesive Lorient Neoprene Seal were also fitted around the inside edge of the frame.



The specimen was tested opening towards the furnace and in this orientation achieved the following performance:

Integrity: 132 minutes

Insulation: 18 minutes

Details of the tested access panel door are shown in figures 1 to 4.

4 Description of the proposed access panel doors

4.1 Construction

The door trays consist of a 1mm-thick Zintec steel skin, strengthened with two pre-formed vertical stiffeners and two pre-formed horizontal stiffeners, formed from 1.5mm-thick steel, welded within the door tray.

The leaf is hinged via a mild steel continuous hinge welded to the door leaves and bolted to the frame.

A sheet of 12.5mm-thick Lafarge Megadeco plasterboard is inserted into the recessed leaf and screw fixed to the door tray using 32mm drywall screws. The plasterboard is covered with a 1.5mm-thick Zintec steel rear protection plate, screw-fixed to the leaf at nominal 200mm centres, the screws locating into the stiffeners inside the door leaves. The space between the Megadeco plasterboard and the front of the door leaves is filled with E-Coustiquilt insulation.

The locking device consists of a two-point locking system in the passive leaf and a three-point locking system in the active leaf, both comprising 8mm-diameter steel rods locating into the frame top and bottom and a central cam locking the door leaves at mid-height. The locking rods engage approximately 10mm into the frame at the top and bottom of the door leaves.

The frame consists of a pre-formed 1.2mm-thick Zintec steel section with a 25mm wide front flange. The frame is tightly fitted into the structural opening in the partition and screwed in position using M5 x 50mm self-tapping screws.

The metal parts of the door leaves and frame are polyester powder coated RAL 9010, 20% Gloss.

Envirograph self-adhesive intumescent strips, ref. G10/10, nominally 10mm wide x 2mm thick, are fitted around the inside edge of the frame and the rear edge of the door tray. In addition, strips of self-adhesive Lorient Neoprene Seal are also fitted around the inside edge of the frame.

The maximum access panel door dimensions are 2000mm wide x 2600mm high.

4.2 Installation

The reveal of the aperture in the partition is lined with sections of stud which are fixed back to the partition framework and finished with a single layer of the same type of plasterboard as is used to face the partition.



The access panel frame is positioned within the partition aperture, flush with the opening face, and screw fixed through into the steel frame around the periphery of the aperture.

5 Assumptions

It has been assumed that the partition into which the access panel door is installed has a fire resistance of at least that required by the access panel.

6 Assessment

The double-leaf access panel door tested in BRE report no. 248908 satisfied the integrity criteria of BS 476: Part 22: 1987 for the duration of the test, 132 minutes. During the test there was no significant distortion of the access panel leaves relative to the frame or each other. Furthermore, there was no indication in the observations made during the test that any gaps were developing between the leaves or between the leaves and the frame.

The proposed increases in size equate to approximately 11.7% in width, 4.4% in height and 16.7% in area. Given the good performance of the tested specimen and the fact that the door leaves were fitted with continuous hinges, the active leaf with a three-point latch and the passive leaf with a two-point latch, these increases are reasonable in our opinion, particularly as the test ran on successfully for 12 minutes beyond the required fire resistance period.

7 Conclusion

Therefore it is our opinion that double-leaf access panel doors, up to 2000mm wide x 2600mm high, installed in steel-framed partition systems, as described in section 4, are suitable for applications where a fire resistance of up to 120 minutes is required against the integrity criteria of BS 476: Part 22: 1987, for fire exposure from the opening side.



8 Validity of the assessment

8.1 Declaration by applicant

- We the undersigned confirm that we have read and complied with the obligations placed on us by the PFPF Guide to Undertaking Assessments in Lieu of Fire Tests.
- We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which this assessment is being made.
- We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.
- We are not aware of any information that could adversely affect the conclusions of this assessment.
- If we subsequently become aware of any such information we agree to cease using the assessment and ask BRE Global to withdraw the assessment.

Signed:

For and on behalf of:

This assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

8.2 BRE Global declaration

This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to BRE Global the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence over an expressed opinion. The assessment is valid for a period of five years after which it should be returned for review to consider any additional data which has become available or any changes in the fire test procedures. Any changes in the specification of the product will invalidate this assessment.

This assessment has been carried out in accordance with Fire Test Study Group Resolution No. 82. It relates to the fire performance of the product and does not cover aspects of quality, durability, maintenance nor service requirements. This assessment relates only to the specimen(s) assessed and does not by itself imply that the product is approved under any Loss Prevention Certification Board approval or certification scheme or any other endorsements, approval or certification scheme.

Next review date: 19 December 2017



9 Figures



Figure 1 Horizontal section through tested access panel door





mm89

Figure 2 Vertical section through tested access panel door



1.	Access panel frame manufactured from 1.2mm thick Zintec steel sheet. The 25mm wide picture frame surround was mitred at each corner. All seams were fully welded and sealed.
2.)	Access panel door tray manufactured from 1.0mm thick Zintec steel sheet, cut and folded to dimensions shown.
3.)	12.5mm thick Lafarge Megadeco wallboard factory screw fixed to the rear of the door tray using 32mm drywall screws.
4.	2No. 1.5mm thick Zintec steel stiffeners per door welded vertical at each edge as shown of door tray. Size 48mm x 100mm x 48mm x 20mm.
5.	2No. 1.5mm thick Zintec steel stiffeners per door welded horizontal off centre of the door tray. Size 20mm x 48mm x 100 x 48mm x 20mm.
6.	3-point locking system (see enclosed detail) with central lock operating 8mm diameter rods which lock into frame top and bottom. The rods are secured to the door tray with 4No. lock guides.
7.)	2-point locking system (see enclosed detail) with central lock operating 8mm diameter rods which lock into frame top and bottom. The rods are secured to the door tray with 4No. lock guides.
8.	50mm thick E-Coustiquilt matting inserted into cavities between door tray and Megadeco wall board.
9. (10.)	Mild steel continuous hinge welded to door tray and bolted to frame using M6 bolts and nuts with washer. M6 bolts welded to panel frame at 50mm in from edges and 300mm centres thereafter. Door tray secured to frame using M6 nuts and washers.
11.	4No. 10mm wide x 2mm thick self adhesive intumescent (BS476,part 1) glazing strip (Envirograph Ref: G10/10) fitted around inside edge of frame and rear edge of door tray.
(12.)	2 No. strips of self-adhesive Lorient Neoprene Seal around inside edge of frame.
13.	1.5mm thick Zintec door angle 65mm wide.
(14.)	14mm diameter metal screw bung with neoprene washer, covering budget lock hole in door tray.
(15.)	Chrome Handle with 8mm square bar fixed to 2-point locking system, screw fixed to rear of door tray.
(16.	1.5mm thick Zintec steel rear protection plate screw -fixed to rear of door.
(17)	M5 Hankbushes and Screws to Provide Extra Fixing Points For Rear Plates

Figure 3 Key to figures 1 and 2





2mm Gap Between Doors

Figure 4 Rear view of tested access panel door showing locking arrangement

======REPORT ENDS=========