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BRE Global Assessment Report

An assessment of the fire performance of a single-leaf version of the double-leaf access panel tested in BRE report no. 236024

Prepared for: Fire Proofing Services Limited

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1 Introduction

A fire resistance test in accordance with EN 1634-1:2000 has been carried out on a double-leaf access panel mounted in a 210mm-thick brick wall. This assessment report considers the fire performance of a similarly constructed single-leaf access panel against BS 476: Part 22: 1987.

2 Scope

This assessment report considers the fire performance of a single-leaf access panel mounted in a masonry wall against the integrity and insulation criteria of BS 476: Part 22: 1987, for fire exposures of up to 240 minutes from opening side.

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. 236024

A double-leaf steel/plasterboard access panel (mounted in a steel frame) fixed into a 210mm-thick brick wall was subjected to a fire resistance test in accordance with BS EN 1634-1:2000 on 23 May 2007 for a duration of 264 minutes.

The access panel, nominally 1990mm high x 1790mm wide, comprised two leaves both constructed from polyester powder coated 1.2mm-thick Zintec steel skin on one side and 12.5mm-thick Megadeco plasterboard on the other side with 50mm thick Superwool 607 insulation between the faces. The panel leaves were hung in a steel frame incorporating a smoke seal and intumescent strip, both leaves opening towards the furnace.

The specimen when tested in the orientation described was found to have the following fire resistance:

Integrity:	Sustained flaming:	264 minutes (no failure, the test having been discontinued at the request of the sponsor's representative).
	Gaps:	264 minutes (no failure, the test having been discontinued at the request of the sponsor's representative).
	Cotton pad:	45 minutes
Insulation:		36 minutes

4 Description of the proposed access panel

4.1 General

The proposed single-leaf hinged steel/plasterboard access panel door and steel frame assembly is designed to be mounted into an aperture 2000mm high x 900m wide in a brick wall. The access panel provides a clear opening, 1920mm high x 790mm wide. The design, which is described in the following sections, is the same as the double-leaf access panel tested in BRE report no. 236024.

4.2 Access panel leaf

The door tray consists of a 1.2mm-thick Zintec steel skin, strengthened with pre-formed 1.5m-thick vertical and horizontal stiffeners welded to the sides, centre and top and bottom edges of the door tray.

A 12.5mm-thick Lafarge Megadeco Wallboard and Zintec steel backing plate are screw-fixed to the rear of the door tray using 32mm drywall screws. The cavity between the wallboard and inner face of the door leaf is filled with 50mm-thick Superwool 607 insulation.

The door hinge consists of a 1.5mm thick mild steel continuous hinge welded to the inside face of the door tray. This is fitted to the panel frame using M6 bolts and nuts with washers.

The main locking device is a three-point locking system using 8mm diameter rods locking into the frame top and bottom, with a central lock on the locking side. A swivel lidded escutcheon is fitted to the central lock hole.

White plastic dome plug spacers (16mm diameter) are inserted into the two holes, top and bottom of the door tray edge, the holes positioned approximately 100mm in from the door sides.

Polypropylene smoke seals are fitted to the inside of the rear flanges on the door frame.

4.3 Access panel frame

This consists of a 1.2mm-thick Zintec steel section with M6 bolts welded to the hinge side 50mm in from each end and then at 300mm centres. The 25mm wide front flange is mitred in each corner.

The panel frame has a polypropylene continuous smoke seal and intumescent strip around the inside rear flange.

5 Assumptions

It is assumed that the masonry/concrete wall into which the access panel is installed has a fire resistance of at least that required by the access panel and is capable of supporting it throughout that period. It is also assumed that the access panel is installed in the wall in the same way as tested.

6 Comparison of test standards

The tests detailed BRE report no. 236024 was carried out in accordance with EN 1634-1:2000. The heating conditions of this standard are generally considered to be more onerous than those of BS 476: Part 22: 1987 due to the use of plate thermometers. These detect the rise in temperature in the furnace more slowly than the bare-wire thermocouples specified in the BS.

Therefore, it is our opinion that had the test been carried out in accordance with BS 476: Part 22 the performance of the access panel would have been similar.

7 Assessment

The double-leaf access panel tested in BRE report no. 236024 satisfied the integrity criteria of the standard for 45 minutes at which time a cotton pad was applied to the door meeting stiles at mid-height and ignited. This would not have constituted a failure if the test had been carried out in accordance with BS 476: Part 22: 1987 as this was after failure against the insulation criteria had occurred. The access panel would therefore satisfy the integrity criteria of BS 476: Part 22: 1987 for a period of at least 240 minutes.

During the test the panel leaves remained tightly engaged with the frame and there was no indication of any gap development between the leaves and the frame or between the leaves at the meeting stile.

It is our opinion that a single-leaf version of the tested access panel will perform in a similar manner for the following reasons:

a) The panel leaf is no larger than that tested.

b) The three-point lock on the leading edge of the leaf should offer a similar level of restraint to the continuous hinge on the other edge. Therefore as no gaps opened up on the hinge edge in the test it is unlikely that any gaps will open up on the latch edge of a single-leaf access panel.

c) The access panel leaf is approximately 62mm thick. This means that the development of gaps due to differential distortion between the leaf and frame is extremely unlikely.

8 Conclusion

Therefore it is our opinion that a single-leaf version of the access panel tested in BRE report no. 236024 will satisfy the integrity criteria of BS 476: Part 22: 1987 for at least 240 minutes when installed in a masonry or concrete wall and exposed to fire from the opening side.

9 Validity of the assessment

9.1 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:

9.2 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: 22 September 2019

Report Ends