An assessment of the fire performance of a single-leaf hinged access panel installed in a steel-framed plasterboard partition

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

16 August 2012

Assessment report number
CC 238923 Review 1

Protecting People, Property and the Planet

Prepared on behalf of BRE Testing by

Name Andrew C Russell

Position Senior Consultant

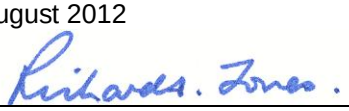
Signature 

Authorised on behalf of BRE Testing by

Name Richard A Jones

Position Associate Director

Date 16 August 2012

Signature 

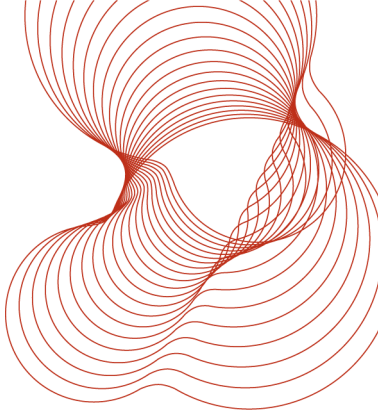
Date of original report 24 August 2007

Date of this review report 16 August 2012

Date of next review 24 August 2017

BRE Global
Bucknalls Lane
Watford
Herts
WD25 9XX
T + 44 (0) 1923 664100
F + 44 (0) 1923 664994
E enquiries@breglobal.com
www.breglobal.com

Contents



1 Introduction

The single-leaf hinged access panel considered in this assessment report is designed to provide 120-minutes fire resistance with respect to the integrity criteria of BS 476: Part 22: 1987 when installed in a plasterboard partition.

2 Scope

This assessment report considers the fire resistance of a single-leaf hinged access panel installed in a plasterboard partition against the integrity criteria of BS 476: Part 22: 1987, for fire exposures of up to 120 minutes from the 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. 232236

A single-leaf access panel installed in a steel-framed plasterboard partition was submitted to a fire resistance test carried out in accordance with BS 476: Part 22: 1987 (Method 6) on 20 September 2006 for a duration of 69 minutes.

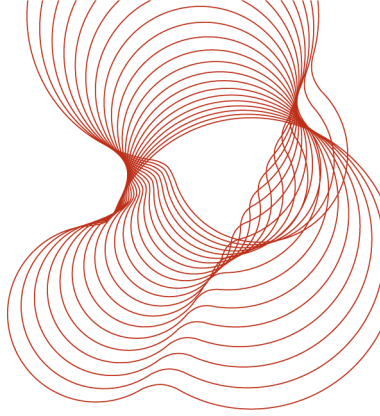
The access panel comprised a preformed steel door leaf, nominally 1993mm high x 892mm wide x 63mm thick. The door leaf was manufactured from 1mm-thick steel sheet with three vertical stiffeners and a sheet of 12.5mm-thick Megadeco plasterboard on the unexposed face. The voids between the stiffeners were filled with 50mm-thick E-Coustiquilt glass wool and the perimeter of the leaf on the unexposed face incorporated a protection plate formed from 1mm-thick steel. The door leaf was fitted with a continuous hinge, which was welded to the inside face of the door tray, and a 3-point locking system.

The panel leaf was hung in a 1.2mm-thick steel frame. This incorporated a self-adhesive intumescent seal, 10mm wide x 2mm thick, and two Lorient neoprene seals, 18mm wide x 4mm thick, which were fitted to the frame stop. A further flexible foam fire retardant smoke seal, 8mm x 4mm, was fitted to the inside of the locking edge of the frame.

The access panel was incorporated in a steel-frame partition comprising two layers of 15mm-thick Lafarge Firecheck plasterboard on each face. The access panel opened towards the furnace and in this orientation achieved the following fire resistance:

Insulation: 13 minutes

Integrity: 38 minutes



For full details see BRE test report no. 232236.

3.2 BRE test report no. 232237

A single-leaf access panel installed in a steel-framed plasterboard partition was submitted to a fire resistance test carried out in accordance with BS 476: Part 22: 1987 (Method 6) on 26 September 2006 for a duration of 120 minutes.

The access panel comprised a preformed steel door leaf, nominally 893mm high x 596mm wide x 62mm thick. The door leaf was manufactured from 1mm-thick steel sheet with two vertical stiffeners and a sheet of 12.5mm-thick Megadeco plasterboard on the unexposed face. The voids between the stiffeners were filled with 50mm-thick E-Coustiquilt glass wool and the perimeter of the leaf on the unexposed face incorporated a protection plate formed from 1mm-thick steel. The door leaf was fitted with a continuous hinge, which was welded to the inside face of the door tray, and a 3-point locking system.

The panel leaf was hung in a 1.2mm-thick steel frame. This incorporated two self-adhesive intumescent seals, each 10mm wide x 2mm thick, and two flexible foam fire retardant smoke seals, 8mm x 4mm, which were fitted to the frame stop.

The access panel was incorporated in a steel-frame partition comprising two layers of 15mm-thick Lafarge Firecheck plasterboard on each face. The access panel opened towards the furnace and in this orientation achieved the following fire resistance:

Insulation: 22 minutes

Integrity: 120 minutes

For full details see BRE test report no. 232237.

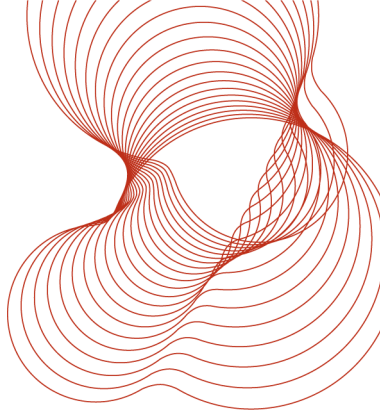
4 Description of the proposed system

The proposed access panel has the same construction and dimensions as that tested in BRE report no. 232236 but incorporates the modified seal arrangement and wider stop of the access panel tested in BRE report no. 232237.

5 Assessment

The specimen tested in BRE report no. 232236 achieved 38 minutes against the integrity criteria of BS 476: Part 22: 1987. Failure occurred when there was sustained flaming from the leaf/frame interface at a level 800mm below the top of the hinge side from a 10mm-wide gap between the intumesced seal and the frame stop.

The specimen tested in BRE report no. 232237, which achieved 120 minutes against the integrity criteria, had a modified seal arrangement incorporating a second intumescent seal and a slightly wider frame stop



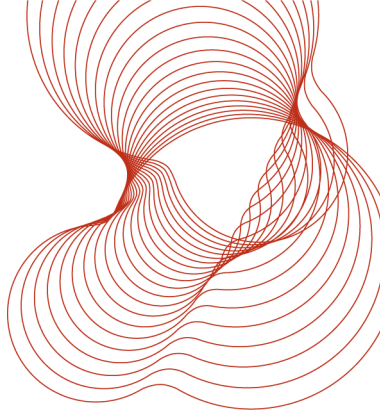
(65mm instead of 55mm). During this test there was some indication of the leaf and frame separating due to the distortion of the door leaf but at no stage did this result in any gaps exceeding the failure criteria of the standard. It was noted that at 35 minutes the leaf had bowed and the separation between it and the frame had increased to 8mm and at 89 minutes it was stated that the gaps had increased to 25mm at mid-height but that the intumesced seals had sealed the gap.

Prior to both tests taking place, the gaps between the frame and the leaf were measured. An examination of the measurements taken suggests that the gaps in both cases were similar. However, the specimen in BRE report no. 232236 was significantly larger than that tested in BRE report no. 232237; generally, the larger size would result in more distortion and the development of bigger gaps. However, the access panels were tested opening towards the furnace and they were fitted with a three-point lock and a continuous hinge, limiting the ability of the leaf to bow away from the frame. It is clear from the photographs taken after the tests that the gaps between the leaf and the frame were similar in the two tests.

Therefore, it is our opinion that if the modified seal arrangement and wider stop had been used on the larger access panel tested in BRE report no. 232236, it would have maintained its integrity for 120 minutes.

6 Conclusion

Therefore it is our opinion that if the single-leaf hinged access panel tested in BRE report no. 232236 had been fitted with the seal arrangement and wider stop tested on the access panel in BRE report no. 232237, it would have achieved a fire resistance of 120 minutes against the integrity criteria of BS 476: Part 22: 1987.



7 Validity of the assessment

7.1 Declaration by applicant

- We the undersigned confirm that we have read and complied with the obligations placed on us by the UK Fire Test Study Group Resolution No. 82 : 2001.
- 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 Testing to withdraw the assessment.

Signed:

For and on behalf of:

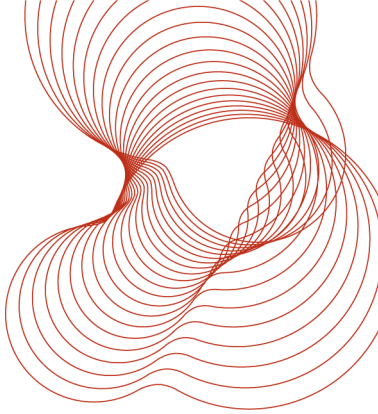
This assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

7.2 BRE Testing declaration

This assessment was reviewed on 24 August 2012. We have received written confirmation from Fire Proofing Services Limited that there have been no changes in the specification of their access panel since the original date of the assessment. There have been no changes in the fire test procedures or methods of assessment, which would adversely affect the fire performance of the access panel. We are therefore satisfied that the validity of this assessment may be extended for a further five years.

This assessment is based on test data, experience and the information supplied. If contradictory evidence becomes available to BRE Testing 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 infer 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: 24 August 2017

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